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Attracting Investment at General Aviation Airports Through Public–Private Partnerships

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A Synthesis of Airport Practice

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Attracting Investment at General Aviation Airports Through Public–Private Partnerships

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AIRPORT COOPERATIVE RESEARCH PROGRAM

Airports are vital national resources. They serve a key role in transportation of people and goods and in regional, national, and international commerce. They are where the nation's aviation system connects with other modes of transportation and where federal responsibility for managing and regulating air traffic operations intersects with the role of state and local governments that own and operate most airports. Research is necessary to solve common operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the airport industry. The Airport Cooperative Research Program (ACRP) serves as one of the principal means by which the airport industry can develop innovative near-term solutions to meet demands placed on it.

The need for ACRP was identified in *TRB Special Report 272: Airport Research Needs: Cooperative Solutions* in 2003, based on a study sponsored by the Federal Aviation Administration (FAA). ACRP carries out applied research on problems that are shared by airport operating agencies and not being adequately addressed by existing federal research programs. ACRP is modeled after the successful National Cooperative Highway Research Program (NCHRP) and Transit Cooperative Research Program (TCRP). ACRP undertakes research and other technical activities in various airport subject areas, including design, construction, legal, maintenance, operations, safety, policy, planning, human resources, and administration. ACRP provides a forum where airport operators can cooperatively address common operational problems.

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ABOUT THE ACRP SYNTHESIS PROGRAM

Airport administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to the airport industry. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire airport community, the Airport Cooperative Research Program authorized the Transportation Research Board to undertake a continuing project. This project, ACRP Project 11-03, "Synthesis of Information Related to Airport Practices," searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute an ACRP report series, Synthesis of Airport Practice.

This synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems.

FOREWORD

By Thomas J. Helms, Jr.
Staff Officer
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The focus of this report is on the use of public–private partnerships to attract investment at general aviation airports. Over the past 5 years, the private sector has been assuming a larger role in the funding of general aviation airport development projects. This trend is expected to continue. This study is based on information acquired through literature review; survey results from 26 airports participating in the study, representing a range of geographic locations and airport categories; and interviews with experts in airport privatization, airport law, and airport management/development. Results of the literature review and survey are presented in this short report. Case examples representing in-depth interviews are presented in Chapter 4 of the report.

Jeffrey Borowiec, Nicolas Norboge, and Jacqueline A. Kuzio, Texas A&M Transportation Institute, College Station, synthesized the information and wrote the report. The members of the topic panel are acknowledged on page iv. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.

CONTENTS

Note: Photographs, figures, and tables in this report may have been converted from color to grayscale for printing. The electronic version of the report (posted on the web at www.trb.org) retains the color versions.

SUMMARY

Attracting Investment at General Aviation Airports Through Public–Private Partnerships

This synthesis, *Attracting Investment at General Aviation Airports Through Public–Private Partnerships,* focuses on practical business applications that will make general aviation airport developments successful. Although general aviation airports have historically been funded by federal, state, and local entities, the private sector is increasingly playing a larger role. This involvement has ranged on a continuum from service and management contracts to singular projects on airports that involve leasing mechanisms to long-term leases and the whole-scale private development of general aviation airports. In an era of declining resources and increasingly scrutinized public expenditures, private-sector involvement is and will likely need to continue to play a larger role to fill an ongoing and increasing gap between the existing infrastructure and the infrastructure that is needed. Current business (ownership and operating) models of general aviation airports vary from those wholly owned by municipalities to those privately developed and owned but open to the public. Some urban areas have several private airports that play an important role in their region's aviation system. Other states are seeing an increasing number of airports enter into airport management contracts with private companies that offer not only management expertise but also capital development opportunities not heretofore available.

This study focuses on the public–private partnerships (PPPs) at general aviation airports in the United States over the past five years. For the purpose of this research, these partnerships are defined by the World Bank as long-term contracts between a private party and a government entity for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance (*1*). This synthesis is comprised of three key components: (1) a review of the current literature and state-of-the-practice for private participation at general aviation airports, (2) a summary of the results from an initial screening survey of general aviation airports and their privatization efforts, and (3) a summary from five selected case examples of general aviation airports that have undergone some level of partnership with a private-sector partner.

The review of the literature elicited a few key findings. First, both large and mid-sized PPP deals have increased at commercial service airports. These deals, which in a few notable cases have involved the transfer of financing and revenue risk, suggest that the trend in the aviation industry largely follows that experienced in the U.S. highway transportation industry. While it has been unclear exactly the extent to which this trend has been occurring with general aviation airports specifically, a review of literature suggests that more state and municipal governments are increasingly expressing interest in exploring ways to transfer a larger share of the construction and operational risk of their assets to a private-sector partner in the hopes of attracting more infrastructure development and revenue.

One potential issue affecting how general aviation airports can attract more private investment, however, is the heavy reliance of general aviation airports on limited federal funding from FAA under the Airport Improvement Program (AIP). The associated grant assurances as well as the unique rules, regulations, and minimum standards associated with the airport operating environment make it different from other PPP arrangements in the transportation or real estate industries. The remaining major funding sources are from state and local tax revenue, and grant money. The relatively limited revenues and sources of money available to general aviation airports has meant that investment is short of what is typically available to larger, commercial service airports. On the basis of feedback received from the survey results, however, this trend may be changing, as general aviation airports become more creative at monetizing their existing assets.

The review of literature highlighted the fact that most PPPs in aviation are focused on larger, commercial service airports. It also became clear that little has been written and published about general aviation airports and PPPs.

The second component of this study, the screening survey portion, yielded a few key trends. Although this survey was not statistically representative of all general aviation airports, researchers were able to obtain results from airport managers in more than 15 states from all four major regions of the country. Similar to results that emerged during the literature review, interest by general aviation airports in attracting private investment is increasing. However, reasons for *why* general aviation airport officials were considering PPPs, and the outcomes, varied.

The primary survey results provided insight on why airports are pursuing PPPs and what benefits they are or hope to be receiving. This study established that airports are pursuing such partnerships for many reasons and are structuring them in many ways on a seemingly ad hoc basis. Many survey respondents noted that working with private partners to share risk had helped to increase project financing flexibility and in some cases helped the general aviation airport deliver projects on time and within the original scope and budget.

Many airports across several states have turned to professional airport management companies in an effort to accomplish their goals. These goals include not only managing the facilities but also leveraging the expertise of these companies to increase activity and revenue as well as take advantage of the real estate management and capital development expertise. Because in many respects running an airport is about managing real estate, knowledge in that arena is paramount.

During the course of this study, it became evident that many general aviation airport officials—including some who were entering into such partnerships just this year—were new to PPPs. Innovative solutions and increased efficiencies can be gained while limited government flexibilities, the misperception of a private-sector takeover of a facility, and unforeseen challenges can be downsides. However, open communication between the stakeholders, transparency throughout the process, and a willingness of government in addressing needs can help make such a project successful.

Further study, of which specifics have been provided, could help provide additional guidance to airports looking to attract private investment to meet their needs. Much of this future research could be consolidated to comprise a guidebook for general aviation airports on developing PPPs to provide solutions to a number of challenges that they currently face.

CHAPTER 1

Introduction

The U.S. airport industry has a long and storied history of both public and private sectors working collaboratively to build, operate, and maintain the nation's extensive airport network. For much of the mid-20th century, most large and small airports alike were constructed by cities or counties, with assistance provided from the federal government in some circumstances. However, as many state and local governments face declining public revenues, many airport sponsors and public officials are increasingly exploring options for attracting private investment in airports.

The potential benefits for airport privatization that has been found in larger airports have included (*2*)

- Access to provide capital for development;
- The ability to extract an upfront or ongoing payment for the airport asset;
- Stimulation of air service and airline competition;
- Introduction of more innovation and creativity, including entrepreneurial ideas in the development of nonairline revenue;
- Secured long-term efficiencies in operation and maintenance and enhanced customer service;
- Shifted risk of debt, capital development, and/or operations to the private sector;
- Acceleration of project delivery and reduction of construction costs;
- Reduced reliance on general tax levies and other funding from airport sponsors; and
- Depoliticization of airport decision-making.

Considerable work has been done examining the privatization of commercial service airports; however, few studies have examined the possibilities of private-sector participation at general aviation airports. *General aviation airports* are defined as public-use airports that do not have scheduled service or have less than 2,500 annual passenger enplanements (*3*). General aviation airports form a critically important component of the U.S. aviation network. As of October 2017, 2,564 general aviation airports in the 50 states were providing a critical link to many of America's smaller communities and towns (*4*). There are four types of general aviation airport categories: national, regional, local, and basic. As shown in Figure 1, most general aviation airports are classified as local airports in the annual National Plan of Integrated Airport Systems (NPIAS). The NPIAS is a congressionally required document that "identifies nearly 3,400 existing and proposed airports that are significant to national air transportation and thus eligible to receive Federal grants under the Airport Improvement Program (AIP)" (*4*). This plan consists of a 5-year development estimate and is completed every 2 years.

A summary of each of these types of general aviation airports, as defined in the NPIAS, is provided in Table 1.

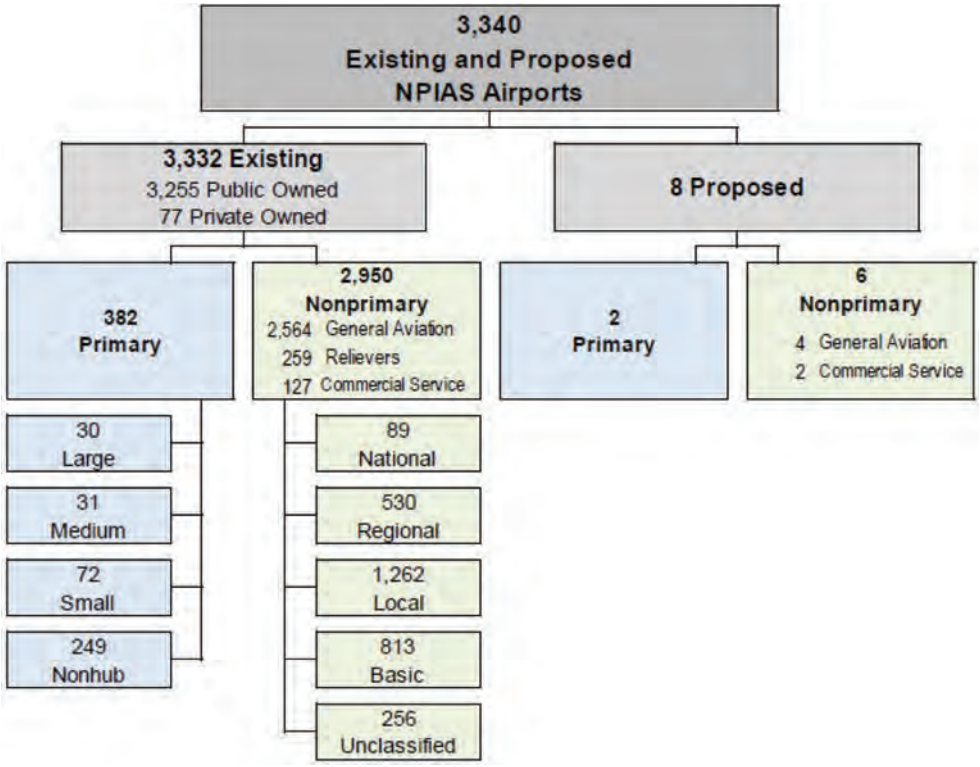


Figure 1. National Plan of Integrated Airport Systems airports by category and role. (Source: USDOT, FAA,* Report to Congress, *2017.)

Background

Although some perceive PPPs as a new tool for delivering transportation infrastructure projects, the practice of a government entity partnering with a private-sector partner to deliver a critical infrastructure asset dates to the early 1800s. The development of the Philadelphia and Lancaster Turnpike in Pennsylvania and many of the nation's first railroads are a few examples of transportation projects that were financed almost exclusively by the private sector. While some of these early infrastructure negotiations involved certain provisions provided by the government, most early transportation infrastructure was financed, constructed, and maintained by private-sector companies. Today, PPPs include a broad scope of contracting, financing, and project delivery arrangements and are used in varying forms around the world (*1*).

For general aviation airports, private investment models can be best viewed as on a spectrum of privatization to varying degrees depending on the amount of risk borne by the private sector. This range extends from the least level of private involvement to a greater level of involvement. Although privatization models can vary, general types of categories are understood to help explain airport privatization: partial privatization, full privatization, and private development, as further explained in Table 2.

Although a general aviation airport can be owned or operated by the private sector in many ways, the focus of this synthesis is on *partnerships* between the public and private sectors. Because of data limitations and the different characteristics, general aviation airports that are developed, owned, and operated entirely by a private sector entity are not included as part of this study.

Table 1. National Plan of Integrated Airport Systems airport categories.

NPIAS Category	Description
National (89 airports)	National airports are located in metropolitan areas near major business centers and support flying throughout the nation and the world. These airports provide pilots with attractive alternatives to the busy primary airports. In fact, FAA has designated 65 of these facilities as relievers for primary airports. National airports have high levels of activity with many jets and multiengine propeller aircraft. Four national airports—Fort Lauderdale Executive, Phoenix Deer Valley, Centennial Airport in Denver, and Gillespie Field in San Diego—have more than 700 aircraft based at the airport. Two airports—Oakland County International in Pontiac, Michigan, and Morristown Municipal in Morristown, New Jersey—have limited air carrier service. National airports average about 250 total based aircraft, including 30 jets.
Regional (350 airports)	Regional airports are also in metropolitan areas and serve relatively large populations. These airports support regional economies with interstate and some long-distance flying and have high levels of activity, including some jets and multiengine propeller aircraft. About 50 of these airports have limited air carrier service. FAA has designated 151 regional airports as relievers for primary airports. Six regional airports—Mesa Field in Phoenix, Arizona; Whiteman Airport in Los Angeles, California; Livermore Municipal Regional in Livermore, California; Montgomery Field in San Diego, California; Zamperini Field in Torrance, California; and Arlington Municipal in Arlington, Washington—have more than 400 based aircraft. Regional airports average about 100 total based aircraft, including three jets.
Local (1,261 airports)	Local airports are a critical component of the nation's general aviation system, providing communities with access to local and regional markets. Typically, local airports are located near larger population centers. These airports also accommodate flight training and emergency services. These airports account for 38 percent of all NPIAS airports and have moderate levels of activity with some multiengine propeller aircraft. About 76 of these airports have limited air carrier service. Four local airports have more than 200 based aircraft: Nampa Municipal in Idaho, Birchwood Airport in Alaska, Corona Municipal in California, and Grants Pass in Oregon. Local airports average about 34 based propeller-driven aircraft and no jets.
Basic (831 airports)	Basic airports fulfill the principal role of a community airport, providing a means for private general aviation flying, linking the community with the national airport system, and making other unique contributions. In some instances, the airport is the only access to the community and provides emergency response access such as emergency medical or fire-fighting and mail delivery. These airports have moderate levels of activity with an average of 10 propeller-driven aircraft and no jets.
Unclassified (256 airports)	These airports tend to have limited activity. Of the 199 publicly owned unclassified airports, 122 have between 0 and 3 based aircraft, and 78 have between 4 and 8 based aircraft. Thirty-five privately owned general aviation airports that have never received an AIP development grant are also unclassified. In addition, 22 privately owned reliever airports do not meet criteria for AIP funding.

Source: USDOT, FAA, *Airport Categories.*

Table 2. Major airport privatization strategies.

Privatization	Description
Partial privatization	Strategies with partial control and at least a portion of ownership remaining with public airport owner
Full privatization	Strategies with the complete control and/or operation of entire airport vested with private entity
Private development	Strategies with an airport planned, built, and operated entirely by a private entity

Source: S. Ernico et al., *ACRP Research Report 66: Considering and Evaluating Airport Privatization*, 2012.

Study Approach

The purpose of this research study is twofold: first, researchers aimed to gain a better understanding of the experiences of general aviation airports with public–private partnerships. Second, researchers sought to determine what possible lessons learned from these experiences might be used to help general aviation airports attract private sector investment. To accomplish this, researchers

1. Reviewed relevant literature on public–private partnerships and general aviation airports;
2. Assembled a contact list of general aviation airport and industry professionals;
3. Developed and administered an online screening survey and a full survey to general aviation airport officials;
4. Where relevant, conducted phone interviews with key airport professionals; and
5. Prepared a final report that summarized the findings from the literature review and survey results.

Researchers began this project by first conducting a review of federal, state, local, and international experiences with PPPs in the airport sector and elsewhere. Although most of the available literature pertaining to these experiences in the airport sector were reports published in the *Transportation Research Record* and funded through the Airport Cooperative Research Program, other studies were published by the Congressional Research Service and the Government Accountability Office. Additional literature on PPP best practices and contracting models common among U.S. airports was also included as part of this study; however, most literature found to date focused almost exclusively on larger, commercial service airports. To the extent possible, lessons learned from these larger airports were included in this analysis of smaller general aviation airports as well.

In addition to the literature review, researchers compiled a list of contacts within the general aviation industry. This list included all state aviation directors, selected airport managers, FAA field offices, state aviation association leaders, and aviation industry group representatives including the American Association of Airport Executives (AAAE), the Aircraft Owners and Pilots Association (AOPA), the National Air Transportation Association (NATA), and the National Business Aviation Association (NBAA).

In addition to general aviation airports, the scope of the study included non-primary commercial service airports, of which there are currently 127 in the most recent NPIAS. Of the 127 non-primary commercial service airports, 60 are in Alaska. Ultimately, the list of contacts was developed for the purpose of distributing a screening survey to assist in identifying airports that have been involved in PPPs in the past 5 years. The research team developed two surveys for use in this study: a screening survey and the primary survey.

Together, the case examples and the findings that emerged from the literature review form the primary material on which this synthesis was prepared. Any lessons learned that emerged from the literature review and survey results are included in the findings and are presented in the final chapter of this synthesis.

This synthesis report is organized as follows:

1. Introduction (including an overview of PPPs in transportation and general aviation airports);
2. Private investment at general aviation airports;
3. Industry practices for attracting investment at general aviation airports;
4. State of the practice and case examples; and
5. Conclusions and future study.

The screening survey and primary survey instruments are provided in Appendix A and B of this synthesis, respectively. Additional information regarding the airports that participated in the survey is presented in Appendix C.

CHAPTER 2

Private Investment at General Aviation Airports: A Review of the Literature

History and Development of PPPs in Transportation Infrastructure

PPPs are often thought to be a recent development in the infrastructure delivery space; however, examples of such partnerships date to the 1800s with both road and rail projects. During the 20th century, full public-sector funding for transportation was the norm because of declining interest by the private sector to provide investment. However, as the public pay-as-you-go method failed to keep pace with the current demand for transportation infrastructure, PPPs have again found a place as a project delivery tool in this area. To date, state laws in 33 states, the District of Columbia, and Puerto Rico allow for the usage of PPPs in some capacity (*5*). Many cities and counties also have the ability to participate in private infrastructure development.

The scope of PPP arrangements includes contracting, financing, and project delivery methods, with the accountability for the project largely resting with the government entity. PPPs provide benefits to the public sector through investment of capital and often risk transfer through longer-term contracts or leases.

Principles of PPPs for Real Estate and Economic Development

Aviation PPPs share certain similarities with real estate and economic development PPPs, often because of the land available to airports for development or leasing. Additionally, airport property can be a PPP asset through innovative leasing and management contracts that provide a form of real estate investment. Therefore, it is necessary to consider the benefits and barriers to real estate PPPs as they may relate to similar agreements that could be entered into by general aviation airports. Although many of the principles and risks for horizontal and vertical PPP deals may overlap, the principles for real estate or economic development PPPs may differ from more traditional transportation PPPs (*6*).

In terms of best practices for real estate PPPs, the public sector must understand the goals and ensure that the private-sector partner shares that understanding. This circumstance will involve the right development team to provide expertise across the length and breadth of the project; this team will also need to engage in predevelopment activities to lay the groundwork for the partnership. The activities must be transparent between all parties to the agreement and the public, while private-sector issues with disclosure requirements are navigated (*7*). One clear way to gain buy-in from the public and remain transparent is to explain the benefits of the project, often in economic and financing terms; this action will reduce public wariness toward private-sector involvement in a public project. The development team must fully

understand these benefits and the life-cycle costs to ensure that they are secured from the private sector and reduce any unnecessary risks. Finally, the public-sector partner should document and monitor the agreement throughout its term in order to ensure that the public is receiving the promised benefits and that the project is proceeding appropriately (*6*).

Potential PPP investors in an airport, whether in the land, property, or both, could be real estate developers, such as the PPP to revitalize JFK's Terminal 4 or the building and development of Alliance Airport in Fort Worth (*2*). Therefore, airport officials and staff should understand the real estate model so as to understand their private-sector partner's needs from a project. This factor will also help airport staff understand the risks and rewards for both themselves and the private developer. On the private side, the partner will need to do the necessary homework to navigate the public environment; trust and communication are essential for the private sector to benefit (*6*). Trust and communication between the key stakeholders and the public again provides transparency and ensures buy-in from all groups. Strong leadership is vital in facilitating this communication between all parties and building that trust into all aspects of the agreement.

Overall, successful real estate PPPs share similar characteristics with transportation-related PPPs, as the partnership between the developer and the public entity is key in both types of arrangement. Strong leadership, communication, and a genuine, trustworthy partnership are the main keys to success (*6*). Partners should understand their role, their goals, and the goals of the other partners. Since PPPs can sometimes be viewed with skepticism by the public, the public owner should ensure equitable and reasonable sharing of the costs, risks, and responsibilities associated with the project.

Common PPP Delivery Methods in U.S. Aviation Industry

One characteristic of PPPs is the method used to deliver the project. Delivery methods can be best thought of on a continuum: nearly exclusive public control to entire private control. Table 3 presents a summary review of the spectrum of PPP methods based on the level of control by the public or private sector.

PPPs can have both perceived benefits and limitations associated with them. Table 4 provides a brief overview of PPP benefits and limitations, with an emphasis on some of their trade-offs based on previously conducted studies (*9*). Some of these concerns can be managed through the contract process itself; this process can mitigate many of these perceived limitations and concerns.

The benefits of PPPs can, in some cases, include cost and time savings, improved project quality, and project life-cycle efficiencies. The following list summarizes studies conducted regarding benefits that PPP agreements can provide:

- **Private financing and project acceleration.** Some have argued that through innovative financing mechanisms, a PPP can help expedite the delivery of a project that might otherwise not have been completed in a timely manner or even at all. A recent report by FHWA found that completing a PPP project can minimize public inconvenience and traffic disruption as well as produce public safety benefits (*10*). A common example would be terminal redevelopment projects, such as those undertaken at JFK, LaGuardia, and McCarran airports. Private financing allowed the projects to move forward earlier and work with an expedited timeline as the government entity had access to the necessary capital from the private investor (*2*).
- **Monetization of existing assets.** Some have argued that PPPs that involve up-front payments or revenue-sharing agreements could be used to extract value from existing transportation infrastructure to raise additional funding for other projects. For example, a recent

Table 3. Transportation PPP project delivery models.

Term	Definition
Design–bid–build (DBB)	*This is the traditional method of project delivery in which the design and construction are awarded separately and sequentially to private firms.*
Design–build (DB)	DB is similar to DBB but combines design and construction phases into a single fixed-fee contract.
Operations and maintenance (O&M) contract	This contract refers to a standalone agreement (i.e., the operator is contracting directly with the grantor) rather than part of a concession arrangement whereby the obligations of the concessionaire during the operating period are subcontracted to an operator.
Design–build–operate–maintain (DBOM)	This term refers to the design, construction, operation, and maintenance of a facility by a selected contractor for a specified period with specified performance requirements met.
Design–build–finance (DBF)/design–build–finance–operate (DBFO), design–build–finance–operate–maintain (DBFOM)	The variations of the DB or DBOM contracting method for which the private partner provides some or all project financing. The project sponsor retains ownership of the facility. There is an important difference between these methods with and without traffic risk.
Long-term lease concession	This method involves the long-term lease of existing, publicly financed toll facilities to a private-sector concessionaire for a prescribed concession period during which the private party has the right to collect tolls on the facility.
Build–transfer–operate (BTO)	BTO refers to when a private owner builds an infrastructure facility, transfers it to another entity, and then operates it on a contractual basis for a specified period.
Lease–build–operate (LBO)	LBO refers to sequence in which a private party designs and builds a complete project, sells it to the government or consortium, and leases back and operates the facility.
Build–operate–transfer (BOT)/build–own–operate–transfer (BOOT)	BOT and BOOT refer to models whereby the public-sectorgrantor grants to a private company the right to develop and operate a facility or system for a certain period. After a certain period, the private entity then transfers the facility back to the public sector.
Build–own–operate (BOO)	*BOO refers to the right granted to a private company to develop, finance, design, build, operate, and maintain a project; the public sector can provide tax incentives to make a project worthy of pursuing.*
Private-sector owns and operates (PSOO)	*PSOO refers to a model whereby a private company is granted the right to develop, finance, design, build, operate, and maintain a project, usually without financing assistance from the public sector.*
Asset sale	*Asset sale refers to a sale of a transportation facility by the public sector to the private sector for one lump-sum amount.*
Buy–build–operate (BBO)	*BBO refers to a model whereby government sells an asset to the private-sector entity, which then can make improvements necessary to operate the facility in a more cost-effective manner.*

Note: Delivery models in italics are generally considered purely public or private models and are not always defined as PPPs.
Source: J. N. Buxbaum and I. N. Ortiz, *NCHRP Synthesis 391: Public Sector Decision Making for Public–Private Partnerships*, 2009.

Table 4. Potential PPP benefits and concerns to consider.

Potential PPP Benefits	Potential PPP Concerns
• Private financing and project acceleration • Monetization of existing assets • Cost and time savings • Life-cycle efficiencies • Improved project quality • Risk transfer • Public control, accountability, and flexibility	• Possible loss of public control and flexibility • Possible unreasonable private profits at the public's expense • Perceived loss of future public revenues • Risk of bankruptcy or default • Accountability and transparency • Environmental issues • Foreign companies • PPP toll road issues and accountability • Specific contract terms

Source: Table adapted from information provided by Rall et al., *Public–Private Partnerships for Transportation: A Toolkit for Legislators*, 2010.

GAO analysis found that in 2005 the City of Chicago received about $1.8 billion by leasing the Chicago Skyway to a consortium for 99 years. The city in turn used the lease payments to pay off the remaining debt on the Chicago Skyway and some of the city's general obligation debt. The Skyway Concession Company, LLC (SCC) assumed operations on the skyway on January of that year; as part of this deal, SCC was responsible for all operating and maintenance costs but had the right to all toll and concession revenue. In June 2015, a consortium of three Canadian pension funds agreed to purchase the lease from Cintra and Macquarie, holders of the SCC, for $2.8 billion. As part of this 2015 sale, the City of Chicago collected $20 million and the Chicago Transit Authority $8 million in real property transfer taxes (*11*). In another example, in 2006, the state of Indiana signed a 75-year, $3.8 billion lease of the Indiana Toll Road (*12*). The proceeds of this transaction primarily were used to fund other highway infrastructure projects in Indiana. In terms of aviation, the agreement between Morristown Municipal Airport and a private company, DM Airports, allowed the local government to shift its debt burden and start receiving revenue from the airport. This deal shifted the debt burden to the private company as part of the agreement, as well as DM Airports investing in the airport infrastructure to make the facility profitable again (*2*).

- **Cost and time savings.** Recent academic literature and policy studies make note of the time and cost savings that can be attributed to the PPP approach to highway delivery. Although academic evidence of PPP performance in the United States is limited, a recent academic study examined 12 North American PPPs and found that the PPP sample cost overruns averaged 0.81 percent and schedule overruns averaged –0.30 percent, compared with 12.71 percent cost overruns and 4.34 percent schedule overruns for publicly financed large-scale DBB highway projects (*13*). Possible reasons for time and cost savings include
  - Direct incentives to the private contractor for on-time delivery,
  - Proper use of performance-based contracting,
  - Competition between bidders,
  - Transfer of risk to the private sector, and
  - Life-cycle efficiencies.

  According to Chasey et al., with a relatively small universe of completed construction phase efforts to examine, it may be premature to draw explicit conclusions based on a single study of PPP delivery methods (*13*). However, the results reported in this study do point to tighter control of highway construction costs and delivery schedules when projects are delivered by the PPP method. Furthermore, Chasey et al. note the need for additional empirical research to be conducted to assess better what specific aspects of a project delivered conventionally by the public sector versus the PPP method matter in influencing whether a project is delivered on time and within schedule (*13*).
- **Life-cycle efficiencies.** In an approach such as DBOM, a sole contractor is responsible for several project stages; such responsibility gives the private contractor the incentive to lower costs throughout the facility's life cycle and reduces possible collaboration delays. According to a 2004 U. S. Department of Transportation (USDOT) report to Congress, "public-private partnerships can save from 6 to 40 percent of the cost of construction and significantly limit the potential for cost overruns" (*10*).
- **Improved project quality.** Several studies have found that PPPs can improve the quality in the delivery of a highway project. Although little quantitative evidence exists, in its survey of transportation PPP agencies the University of Minnesota found that the use of a PPP contract method had been effective at encouraging innovation with private expertise and state-of-the art technologies (*14*).
- **Risk transfer.** In some cases, a PPP contract can allow for the transfer of risk from the public sector to the private sector. Some experts believe that this risk transfer can actually encourage the public sector to reduce its own risk and potential financial losses. Furthermore, the up-front consideration of possible risks in a PPP arrangement can facilitate more timely (and

less costly) risk mitigation. A recent UK National Audit Office (NAO) study, however, found that these potential risk transfer benefits can depend on careful project analysis and public-sector enforcement of the PPP agreement (*15*).

- **Public control, accountability, and flexibility.** Although some transportation experts have warned that PPPs could reduce public control over public assets, others have argued that these contracting methods could enhance public accountability and control over transportation infrastructure. For example, Leonard Gilroy of the Reason Foundation notes that most PPP negotiations tend to be based on a "strong, performance-based contract that spells out all of the responsibilities and performance expectations that the government will require of the contractor. The failure to meet any of the thousands of performance standards specified in the contract exposes a contractor to financial penalties." He concludes that "the public interest is protected by incorporating enforceable, detailed provisions and requirements into the contract" (*16*). Other experts have noted that under a typical PPP agreement, the public sector does not lose ownership of a facility and that well-crafted agreements, along with proper enforcement of those contract terms, can ensure that the public is protected (*8*).

According to the literature, limitations and concerns regarding PPP contract methods have also emerged (*9*). Some of these concerns are summarized here:

- **Possible loss of public control and flexibility.** Some have argued that PPPs, if not structured to protect the public interest adequately, result in a loss of public control and flexibility. Some of this risk can develop because it is difficult to predict the public's need far into the future. For example, some European Union countries have limited PPP contracts in term length to a maximum of 35 years (although some such as the Channel Tunnel project have been as long as 99 years) (*17*). Morristown Municipal Airport provides another example of such a long-term agreement: the airport entered into a 99-year lease agreement with DM Airports. However, this is not common practice, as most airport lease agreements do not extend past 40 years. In this case, Morristown benefited from the longer term, as DM took on the airport's debt obligation as well as providing payments to the local governments (*2*). Others argue that these limits should be decided on a project-by-project basis; concerns surrounding public control are typically addressed in PPP contracts that are written to stipulate how each party may amend a contract (*17*) (*8*).
- **Possible unreasonable private profits at the public's expense.** Some claim that private companies may make profits at the public's expense by exerting high tolls and fees, overlooking maintenance concerns only to boost profits, or requiring compensation for lost revenue due to competing facilities (*8*). Although standards and clauses may have been outlined in a contract, some claim that contractual restrictions on tolls and fees allow private entities more than enough discretion to raise rates. Others argue that unsolicited bids also are thought to allow the private developer to design a project that may place profits ahead of the public good (*8*). At the same time, others have argued that unsolicited proposals can encourage project innovation. A 2004 USDOT study found that a variety of PPP stakeholders (including state representatives, law firms, private companies, and trade associations) recommended elimination of state prohibitions on accepting unsolicited proposals (*10*).
- **Perceived loss of future public revenues.** Some criticize PPPs because of the perception that these contracting methods could result in a loss of future public revenues. According to a GAO analysis, the higher private-sector financing costs relative to public-sector financing costs may result in higher overall project costs (*12*). Conversely, others assert that many of these issues can be addressed through careful asset valuation and risk-sharing agreements (*9*).
- **Risk of bankruptcy or default.** Some project stakeholders have expressed concern that a private partner could default on a project and thus affect the public sector in a negative way. This concern is especially directed toward agreements in which the public sector is at financial risk

or otherwise could be owed money at the time of default. Others find that PPPs are nearly always designed with minimal risk to the public sector (*16*).

- **Accountability and transparency.** Although maintaining confidentiality during the PPP proposal process can be important for several reasons, some expressed concerns about the openness and accountability for PPP projects relative to the traditional highway procurement process (*18*). For example, in a recent survey of state DOTs, 70 percent of respondents considered transparency an important measure to protect public interest (*8*). Several studies found that PPP agreements completed without public oversight and opportunities for input can hurt public opinion toward these agreements. The available evidence shows that concerns about transparency and accountability can be mitigated through an open process that gives all stakeholders opportunities to provide input (*8*).
- **Environmental issues.** Concerns have been raised by some that PPP agreements may be tempted to choose possibly less environmentally friendly methods to save on cost. However, in recent years PPP contracts have been written to include environmental performance standards (*8*).
- **Foreign companies.** Concerns related to foreign companies involved with PPP contracts in the United States include foreign control of domestic assets, national security issues, and potential federal preemption of state and local authority in projects involving trade. The lines are blurred between foreign and U.S. investment companies as many foreign companies may include U.S. investors and many U.S. pensions are invested in non-U.S. investment funds.
- **PPP toll road issues and accountability.** Some say that roads that received some funding through traditional transportation funding mechanisms (e.g., gas taxes, vehicle registration fees) should not be tolled. To gain public support, some say that benefits to using the toll facility need to be clearly articulated (*10*). Other issues for public and private toll roads include the rerouting of traffic to toll-free routes, removal of tolls upon termination, and toll rate control. Many of these toll road issues can be addressed in PPP contract provisions or enabling legislation.
- **Specific contract terms.** Other concerns have emerged regarding specific PPP agreement terms. Concerns regarding maintenance standards, hand-back provisions, commercial development rights, data ownership, and other issues can be identified (and dealt with) within PPP agreements (*8*).

Although PPPs have been utilized for more than a century, state and federal legislation had not enabled or regulated the usage of these types of agreement until recently. As PPPs became more popular over the past decade, states started to pass legislation either to provide broad authorization or to restrict the usage of PPPs to certain projects (*19*). The two common types of PPP can be referred to as vertical and horizontal PPPs. Currently, 33 states, the District of Columbia, and Puerto Rico have enabling legislation for transportation PPPs. Horizontal PPPs are perhaps the most common; this terminology refers to most transportation projects that involve both public- and private-sector entities. Vertical PPPs are commonly termed as "social infrastructure"; these involve private-sector investment in building education, public works, or general government facilities. The development of airports involves both horizontal (i.e., pavements, runways, etc.) and vertical infrastructure (terminal building, hangar, etc.) PPPs.

The majority of states with PPP legislation enable both vertical and horizontal agreements. If a state provides only limited authorization for the use of PPPs, it tends to be for horizontal, or transportation, PPPs, because those are the more common arrangements. This factor could restrict the usage of PPPs for aviation in some states, as many agreements would require some form of vertical infrastructure, such as facility development.

There is no broad enabling federal legislation for general PPPs, since this area has largely been left to the states to decide. However, federal legislation and regulations do specifically affect

aviation projects. The Airport Privatization Pilot Program (APPP), originally established under the 1996 Reauthorization Act, and the Airport Improvement Program (AIP), originally established under the Airport and Airway Improvement Act of 1982, provide entries and barriers into the PPP market for airports (*20; 21*). In 2017, Senator James Inhofe introduced legislation to provide an avenue for smaller airports to enter into PPPs with the help of federal dollars (*22*). The legislation is intended to give general aviation airports greater flexibility to use federal funding to attract investment, as well as provide resources to airports that aid in disaster relief.

Airport PPPs in Context

Full airport privatization has been difficult to achieve in the United States largely because of federal grant assurances that restrict airports from generating profit or redirecting airport revenues if those airports received funding from FAA (*23*). FAA did set up a privatization program, the Airport Privatization Pilot Program (APPP), in 1996, but so far only one airport, Luis Munoz Marin International Airport in Puerto Rico, has successfully utilized this program and remains under private operation (*23*). Stewart International Airport was the first airport to complete the APPP process in 1999 when it was sold to the National Express Group (NEG), a transportation management company based in the United Kingdom. The agreement was for a 99-year lease; however, in 2007, NEG sold the remaining 91 years of the lease to the Port Authority of New York and New Jersey and thereby ended Stewart International Airport's participation in the program (*2*). The pilot program has 10 spots for differing categories of airport; there is only one spot available for large hubs, and one spot must be taken by a general aviation airport (*24*). Under this program, general aviation airports can be sold or leased while commercial service airports are restricted to leases only. Currently, Hendry County Airglades Airport in Clewiston, Florida, holds a general aviation spot in the program. In August 2014, FAA authorized the use of a management contract between the county and the private operator, and as of this year, the county and private operator are working to finalize the application (*25*).

The APPP provides additional benefits through the relaxation of certain restrictions under AIP funding, such as clauses that state that all revenue must be used for airport-related purposes, as well as the repayment clause that requires the return of federal grant funding upon privatization. Through this program, the private operator takes on the responsibility of fulfilling the FAA grant requirements and remains eligible for AIP funding at a reduced rate (*26*). The complexity of the requirements and the length of time to go through the program have been cited as potential barriers to full privatization through the APPP. So far 12 applicants have applied, but only two have completed privatization; the remaining 10 airports withdrew their application or were removed for failing to meet deadlines (*25*).

Despite this lack of success for the pilot program, an airport can still pursue private-sector involvement as opposed to full privatization. Three common models in aviation can be used for such an arrangement: service contracts, management contracts, and developer financing/operations (*2*). Service contracts involve the outsourcing of noncore operations to a private company; this area can include maintenance services, airline equipment, shuttle bus operations, and many other services that the airport provides. Management contracts tend to be a level higher, with an airportwide system or just specific facilities contracted out to be managed by a private entity. One common example of management contracts at airports is a parking facility. Management contracts will be discussed in greater detail later in this section as they are pertinent to many aviation PPPs. Finally, developer financing/operation is perhaps the most common PPP: it involves partnering with a developer to finance and operate a facility. In terms of aviation, this mostly involves special purpose facilities for multi- or single-tenant use, such as an airline or

cargo tenants (*2*). These facilities can include terminals, fuel storage, cargo buildings, and even consolidated rental car facilities (*2*).

Overall, examples of PPPs at general aviation airports are limited. However, agreements at Gary/Chicago International Airport; Monroe County Airport, Indiana; and Coastal Carolina Regional Airport provide a basis for understanding how these are applied in a general aviation context. In addition, older agreements in the style of PPPs can enhance understanding of the benefits and costs of using such a model. Further lessons can be learned from agreements at smaller commercial service airports, which could inform best practices for attracting investment at these airports.

Gary/Chicago International Airport embarked on a PPP after losing its only airline in 2013. The agreement involved Aviation Facilities Company (AFCO) and the airport authority. The agreement involves a 40-year contract to manage and operate the airport, as well as providing $100 million for investment into the airport. The management firm AvPORTS, an AFCO subsidiary, currently holds the management contract, which is set to 10 years with the possibility of six 5-year renewals (*23*). The airport authority retains ownership and provides for the operating costs, set at $120,000 per year, as well as allocating 20 percent of the facility's profits to AFCO (*27*). The airport authority hopes that these investments will once again attract an airline to the airport and eventually provide a third option for the Chicago region.

In the early 1980s, development began to slow at the Monroe County Airport, and officials sought out opportunities for private investment and rehabilitation of facilities. The airport board reached out to local investors and aviation partners in the hopes of securing leases for the hangar facility that was completed in 1994. Private investors were offered a unique lease deal that would involve them developing and maintaining their own facilities and then leasing them for 20 years with the option of a 10-year renewal. The private developers would initially retain ownership of the facilities, with the airport becoming vested at 2.5 percent each year (*28*). At the end of the 20-year term, the private developer would still retain 50 percent ownership of the facility; if the 10-year renewal option were used, the developer would control 25 percent at the end of 30 years.

The unique structure of the agreement is cited as one of the main incentives for private investors to build the facilities at Monroe County (*28*). Retaining a stake in the property allowed investors to gain more revenue and provided them with an incentive to maintain the facility over the course of the lease. This situation in turn benefited the airport, as there was no fear that the property would revert to them in substandard condition; the revenue from the rental rate allowed the airport to build enough capital to buy back the facility at the end of the lease. The airport has gained an additional 100 jobs and 22 based aircraft since the beginning of the agreement, as well as the additional facilities and rental revenue due to improvements (*28*). Overall, the Monroe County Airport project provides an interesting example of using private investment to spur growth and increase revenues; the innovative model ensured that the necessary investment would be attracted to cover the cost of the hangar development.

The Coastal Carolina Regional Airport is a small primary commercial service airport in New Bern, North Carolina. During the early 2000s, the airport board, local community members, and airport officials all raised concern over the state of repair of the Tidewater Air fixed base operator (FBO) (*28*). Because the current condition of the airport could not handle the number of pilots or business passengers per day, an agreement was reached to revitalize the FBO. This agreement entailed the private FBO owner, Tidewater Air, paying for the vertical components of the new FBO and the public entities providing funding for the horizontal elements. Therefore, Tidewater built the structure, and the public entities paid for the paving and land preparation. The public entities included the airport authority, the county, and the state; the county waived property taxes on the facility and the state provided some funding for the horizontal elements

of the project. Additionally, local businesses donated the fixtures and interior, amounting to $35,000; this aid allowed Tidewater to focus on construction (*28*).

The partnership between the private company and the airport allowed for the revitalization of a major piece of property, which is seen as the face of the airport. After the completion of the facility, the airport extended Tidewater's lease term for 25 years, which provided the company with land rental payments and allowed Tidewater to regain their investment through generated revenue (*28*). In addition to rental payments, Tidewater pays a fuel flowage fee each month. Therefore, the airport benefits from increased revenue and an improved FBO that can meet the needs of the aviation community.

PPPs have the ability to provide investment for general aviation airports that need additional revenue or capital. The previous examples show that airports often benefit from partnering with a private developer by reduced risk, because construction and maintenance can be completed by the private entity, and increased revenue through new leases, increased rental payments, and fuel fees. The ability to combine construction, as in the case of Coastal Carolina, allowed for a faster completion of the project as less funding from the airport was required; the waiving of fees incentivized the FBO owner and allowed it to complete the project for less money.

Common General Aviation Airport Revenue Stream and Financing Methods

Although several revenue streams are available to airports, most capital funding for general aviation airports relies on federal funding from FAA under AIP. The remaining major funding sources are from state and local tax revenue and grant money (*29*). A major source of revenue for most commercial service airports is the passenger facility charge, which is based on enplaned passengers; this fee was approved in 1990 to provide capital funds for airports (*26*). However, general aviation airports largely deal with business, charter, and recreational operations, rather than passenger service, and derive their revenue from business activities at the airport. Regardless, general aviation airports still generate revenue outside of direct funding. Outside sources include fuel sales and fuel flowage; a number of leases; hangar, land, and building, as well as special events and FBO agreements (*29*). These revenue and funding sources will be explored below.

General Aviation Airport Funding

FAA provides grant funding for airports through its AIP. This money is largely allocated for public agencies that own airports, but there are cases of private owners or entities being allocated funding. The AIP supports planning and development of public use airports that are included in the NPIAS. Available funding is typically apportioned into entitlement categories including primary, cargo, and nonprimary entitlement programs (*30*). Primary airports are those categorized as large, medium, small or nonhub airports. Nonprimary airports are mainly used by general aviation aircraft, but also include nonprimary commercial service airports, which typically enplane between 2,500 and 10,000 passengers. Nonprimary airports also include reliever airports and general aviation airports including those categorized as national, regional, local, and basic under the FAA Asset Study.

The nonprimary entitlement program, first introduced by the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21), currently provides $150,000 for each general aviation airport included in the most recently published NPIAS if Congress appropriates $3.2 billion or more in airport improvement funds (*31*). Although this is not a large sum when the costs associated with airport improvements are considered, the funding can be banked or rolled over for up to 4 years.

For large and medium primary hub airports, the AIP covers 75 percent of the total costs. For small primary, reliever, and general aviation airports, AIP funds cover 90% to 95% of eligible costs (*29*). Eligible projects include improvements relating to airport safety, capacity, security, and environmental concerns. Additionally, funding is granted for those projects that cover noise compatibility.

If an airport chooses to accept funding under the AIP, they must adhere to certain conditions called grant assurances. Airport owners, sponsors, planning agencies, and other organizations that accept FAA-administered funding under the AIP, agree to certain obligations, in this case assurances, which may affect a potential PPP deal. In total, there are 39 grant assurances, but only 14 have been identified as potentially affecting PPPs. Grant Assurance 5 concerns the preservation of rights and powers for the public owner of the airport; this assurance prohibits an airport from ceding control of airport development or selling property that would essentially release the airport from grant obligations. Similarly, Assurance 23 prohibits an airport from allowing one operator to be granted exclusive rights over a service (*7*). This assurance is intended to promote competition for aeronautical services at airports.

Several assurances deal with soliciting input or requiring consistency with plans and land use.

Assurances 6 and 7 concern local input and plans; Assurance 6 requires a consistency with local agency plans, especially surrounding the airport, and Assurance 7 adds a requirement for public comment on airport plans and development for the local community. Assurance 8 requires a solicitation of input, this time from any stakeholders before any airport development takes place (*32*). Grant Assurance 21 restricts development that is not compatible with current land uses around the airport. The airport and developer have the opportunity to work with local agencies to ensure their usage will be compatible, but the airport must also ensure that it updates the airport layout plan (*32*). The plan is submitted to, and approved by, FAA, and developers must not conflict with these plans unless the airport is aiming to resubmit. These conditions are elucidated under Assurance 21.

In terms of operations and maintenance, FAA sets requirements for minimum service and staffing levels under Assurance 19; this assurance can affect PPPs that might be beneficial for airport maintenance or operations, but would provide less revenue generation (*7*). Assurance 20 is concerned with hazard removal and mitigation; this assurance would mainly affect development in terms of construction. Both the developers and airport officials would need to ensure that the construction or development would not impede airport operations or cause any hazard to operations (*32*).

Potential PPPs also need to pay attention to the four assurances that concern economics or monetary affairs. The broadest assurance set out by FAA is Assurance 22, which concerns economic nondiscrimination. The main takeaways for airports considering PPPs are that all agreements must include language that supports economic nondiscrimination, as well as including clauses for the reasonable allocation of rates and fees (*32*). Assurance 24 adds restrictions onto fees by requiring that any change to the fee or rental structure be clearly documented and explained in case of FAA review. Finally, Assurance 25 restricts airport revenue from being diverted from its core purpose; this restriction must be understood by any developer or private partner (*7*). Last, Assurance 30 covers civil rights and provides a clearer nondiscriminatory requirement than economic nondiscrimination. In entering PPPs, airports should ensure that all necessary measures are taken to avoid discrimination on the grounds of race, creed, color, national origin, sex, age, and disability.

In addition to the grant assurances, FAA requires mandatory contract language in any agreement at an airport using AIP funds. This language must be included in any airport sponsor's

contract and involves a subordination clause and a long list of contract clauses that cover labor relations and civil rights. These provisions are uncommon in most private-sector contracts and essentially act as a barrier to investment from the private sector into an airport (*33*). There is currently no guidance from FAA on how these provisions may apply to PPPs or even more generally for private-sector contractors that do not necessarily need to adhere to these contractual obligations.

General Aviation Airport Revenue Streams

General aviation airports rarely focus on revenue generation or marketing strategies as their main concern is the maintenance and operation of the airport and its services. However, generating additional revenue through different or innovative strategies can aid airports in supporting those functions. The typical revenue generation strategies employed by general aviation airports surround fuel sales and flowage and often the leasing of land or facilities.

Many general aviation airports derive revenue from their fuel services; these services include fuel flowage fee, fuel taxes, and often fuel sales. Some airports rely on an FBO to operate the fuel facility, but revenue still flows toward the airport through the above-mentioned fees. However, relying on fuel revenue can be dangerous because of price volatility; this factor can affect a huge range of airport and airline operations and can cause a dip in fuel sales and therefore fuel flowage.

Another major source of revenue for general aviation airports is derived from land and hangar leases; land leases are considered the most common in aviation and are often leased for the purpose of building or renovating facilities (*28*). Leasing land to a private entity or developer provides the airport with a steady stream of rental revenue and potential added investment because of development on the land. These types of arrangements delve into the realm of real estate management and development, which are a key area for PPP deals.

To execute a successful lease, an airport must understand the requirements for length of lease, allow for revenue streams to the private entity, and ensure that any new facilities built will revert to the airport. Innovative approaches have allowed private developers to maintain a stake in any property that they developed, such as at Moore County Airport, so as to incentivize the developer to maintain the facilities throughout the lease term (*28*). Overall, leases provide a stable revenue stream for many airports, and general aviation airports often require such leases to maintain FBOs, provide additional revenue to support operations and maintenance, and develop new facilities on airport land.

Airport Management Contracts

While not new, contracting out the management of the airport to a private third party has been of growing interest to many local governments. More specifically, these arrangements call for the use of a third-party company to manage a local government's airport facilities while maintaining ownership, setting overall policy, and retaining control, risk, and financial obligations associated with capital investments. These companies typically provide a range of services that include airport management, facility management, facility development, and airline support, depending on the size, scope, and needs of the airport. Consequently, on the privatization spectrum, these contracts fall between service contracts and full privatization.

Management contracts can be helpful to both small and large general aviation airports. Smaller airports often struggle with financial self-sufficiency and can benefit from the operational efficiencies that professional airport management provides, but are not available within the local municipality. Larger airports can benefit from those same efficiencies, but also from a

range of expertise that may be needed at a large facility, particularly regarding real estate and land development. Typically, these services are provided for a set period and a fixed fee. However, the fees may be tied to performance incentives for increasing activity and/or revenue at the airport. The length of the contract ranges, but typically is approximately 5 years with the potential to extend the contract for additional time periods. In some instances, contract arrangements are for longer periods, with some as high as 40 years and even 99 years, although FAA typically discourages leases in excess of 40 years. According to the FAA's *Airport Compliance Manual*, "leases that exceed 50 years may be considered a disposal of the property in that the term of the lease will likely exceed the useful life of the structures erected on the property." The compliance manual further notes that FAA offices "should not consent to proposed lease terms that exceed 50 years" (*34*). The longer-term contracts are likely related to the specific needs and goals of a particular airport property and the related challenges and risks associated with investment returns.

While airports can and do pursue public-private partnerships outside of an airport management contract, such arrangements are a common way for such partnerships to be established due to the accessibility of a range of services and expertise.

Goals, Objectives, and Benefits

Airports may choose to enter into a contract for the management of their airport for a variety of reasons to achieve any number of goals. As concisely outlined in *ACRP Report 66: Considering and Evaluating Airport Privatization*, management contracts are a vehicle for airport owners wishing to pursue the following goals and objectives (*2*):

- Maintain community control of airport operation and development decisions,
- Secure operating efficiencies,
- Introduce innovative revenue enhancements,
- Eliminate airport subsidies,
- Convert underutilized facility into economic catalyst,
- Depoliticize airport decisions,
- Address identified deficiencies in airport management,
- Advance ideological interest in private-sector participation, and
- Address improper conduct (e.g., corruption).

The benefits that management contracts can provide are also numerous. These include (*2*)

- Reduction in operating expenses because of lower employment and overhead costs,
- Local procurement regulations not being applicable to contractor,
- Streamlining of certain processes,
- Access to private-sector expertise for specialized functions and development,
- Potential for new revenue and economic development initiative,
- Potential to impose contractual obligation for contractor to achieve performance targets, and
- An opportunity for staff to gain management expertise.

Advantages and Disadvantages

Ernico et al. explain the advantages and disadvantages of an airport management contract. They identify seven main advantages and disadvantages (*2*):

Advantages

- Provides opportunity for airport to be managed and operated as a business;
- Streamlines day-to-day operational decision making;
- Affords potentially lower operating expenses from private-sector employment practices and efficiency initiatives;

- Brings increased emphasis on revenue enhancement, and commercial and economic development;
- Reduces ongoing municipal employee compensation, including postretirement expenses (pension, medical, etc.);
- Provides greater incentives for management and employees to perform better; and
- Provides more commercial and operational freedom for contractor.

Disadvantages

- Involves considerable time and effort for the bidding process;
- Could involve buyouts and compensation for existing public workers;
- Could involve organizational disruption (i.e., reassignment or termination of existing employees);
- Difficult to measure efficiencies accurately for justifying compensation;
- Can discriminate against government departments competing in managed competition efforts, as regulations generally prevent them from partnering with private firms or guaranteeing performance;
- Requires careful tracking of contract compliance, which can be a time-consuming and substantial undertaking for the airport owner; and
- Becomes increasingly difficult to attain further improvements and realize the full value of the management fee once initial efficiencies are attained.

As noted, airport management contracts are arrangements that allow airport owners to contract out the management and operation of part or all of a general aviation airport operation for a set period. These contracts are a form of partnership with a private-sector entity. In return, management companies receive a fee for their service for a predetermined period stipulated in the management contract. Such arrangements may allow for development opportunities that may provide additional revenue streams. As with any type of contractual arrangement, however, the advantages and disadvantages of airport management contracts must be carefully considered.

Regulatory Considerations and Compliance

In considering management contracts, airport sponsors need to be cognizant of the regulatory considerations. FAA's guidance on this matter can be found in both the airport sponsor grant assurances and FAA's *Airport Compliance Manual*.

FAA Grant Assurance 5 (f) states the following:

> If an arrangement is made for management and operation of the airport by any agency or person other than the sponsor or an employee of the sponsor, the sponsor will reserve sufficient rights and authority to insure that the airport will be operated and maintained in accordance with Title 49, United States Code, the regulations and the terms, conditions and assurances in this grant agreement and shall insure that such arrangement also requires compliance therewith. (*32*)

FAA's *Airport Compliance Manual* also addresses airport management contracts in Chapter 6: Rights and Powers and Good Title. Section 6.13 Airport Management Agreements specifically addresses airport management agreements:

> 6.13. Airport Management Agreements
>
> a. Responsibility Under Airport Management and Operations Agreements. Although the sponsor may delegate or contract with an agent of its choice for maintenance or supervision of operations, such arrangements do not relieve the sponsor of its federal obligations. Such arrangements also have a high potential for a conflict of interest where the tenant provides aeronautical services itself and at the same time can exercise some control over access and competition at the airport. Consequently, any agreement conferring such responsibilities on a tenant must contain adequate safeguards to preserve the sponsor's control over the actions of its agent. In

addition, to avoid conflicts with a sponsor's federal obligations, the FAA strongly encourages a management contract to be a separate agreement from leases or airfield use agreements held by the agent of the sponsor. This makes the respective responsibilities for each activity clear, and also enables the sponsor to deal with a possible default in one activity (i.e., management agreement) without terminating a second, separate activity not subject to a default, such as an unrelated land lease.

b. Total Delegation of Airport Administration. In certain cases, a sponsor may consider contracting with a private company for the general administration of a publicly owned airport. Whether this is done by lease, concession agreement, or management contract, it has the effect of placing a private entity in a position of substantial control over airport decisions that may affect the public sponsor's grant compliance. This kind of agreement should include provisions adequately protecting and preserving the owner's rights and powers to assure grant compliance.
c. Lease of Entire Airport. If the sponsor grants a lease for the entire airport, the lease will generally include the right to sublease airport property to third-party tenants for aeronautical services and development. In such cases, the lessee may have the right to conduct a commercial business on the airport directly and also to control the granting of such commercial rights to others. This situation creates a high potential for violating Grant Assurance 23, Exclusive Rights, unless mitigated, and the lease should provide for the sponsor to retain sufficient rights to prevent and reverse the granting of any exclusive rights on the airport.
d. Lease Terms That Protect the Sponsor's Rights and Powers. In cases where a management contract or general lease provides a private operator with the ability to make decisions on access by other aeronautical tenants, the inclusion of contract provisions similar to the following can assure that the public sponsor retains the ability to prevent a violation of the grant assurances:
   (1). The lessee (second party, manager, etc.) agrees to operate the airport in accordance with the obligations of the lessor (public sponsor) to the federal government under applicable grant agreements or deeds. The lessee agrees to operate the airport for the use and benefit of the public; to make available all airport facilities and services to the public on fair and reasonable terms and without unjust discrimination; to provide space on the airport, to the extent available; and to grant rights and privileges for use of aeronautical facilities of the airport to all qualified persons and companies desiring to conduct aeronautical operations on the airport.
   (2). The lessee/management firm specifically understands and agrees that nothing contained in the lease shall be construed as granting or authorizing the granting of an exclusive right within the meaning of 49 U.S.C. § 40103(e) and § 47107(a)(4)
   (3). The lease/management agreement is subordinate to the sponsor's obligations to the federal government under existing and future agreements for federal aid for the development and maintenance of the airport. *(34)*

Airport sponsors should also comply with any local or state regulations that may impact management contracts. Familiarity and understanding of the legal, regulatory, and business environment are paramount. This area includes the FAA *Airport Compliance Manual,* all grant assurances, local and state laws, environmental regulations, liability and insurance issues, and safety regulations. *ACRP Research Report 176: Generating Revenue from Commercial Development on or Adjacent to Airports* is a resource that addresses these concerns in more detail.

Airport Management Companies

The descriptions of the four aviation management companies provided below are included to illustrate the range of services that can be provided to airports as well as the various types of airports that utilize such services. Airports across the country have participated in such arrangements to add aviation expertise to their airport, facilitate development, and increase activity and revenue at their airport. The four companies have been identified and highlighted in other publications as leaders among airport management companies. Their inclusion does not constitute an endorsement, but, rather, is used to illustrate the existence of such companies and the range of services that they provide, as well as to whom and where they provide them. Some examples of these companies are provided in the subsections that follow.

AFCO/AvPORTS Management, LLC

Based in New Jersey, AvPORTS is one of the largest airport management companies in the country, with 90 years of experience (*35*). The company manages a diverse group of 16 airports, including general aviation airports, small and medium hub airports, and military bases. These include

- Newark Liberty International Airport (EWR),
- Albany International Airport (ALB),
- Gary/Chicago International Airport (GYY),
- Moffett Federal Field (NUQ),
- Republic Airport (FRG),
- Stewart International Airport (SWF),
- Teterboro Airport (TEB),
- Tweed–New Haven Regional Airport (HVN), and
- Westchester County Airport (HPN).

The company uses a collaborative process to work closely with individual airports to identify priorities and create value for the airport and utilizes its experience and expertise to improve operations and management. This process is accomplished by (*35*)

- Improving cost management and operational efficiencies;
- Performing more services and functions in-house;
- Leveraging economies of scale with aviation suppliers;
- Developing air service and new/expanded airport demand;
- Implementing green practices and energy efficiencies;
- Investing in airport infrastructure that improves efficiencies and/or generates new/expanded revenues;
- Engaging the local community to form expanded partnerships;
- Increasing customer satisfaction with improved service, accountability, and transparency;
- Professionalization of airport management; and
- Developing the available real estate on and around the airport.

While these functions provide a blueprint from which AvPORTS operates, they are included here because they also provide a framework for other airports to consider.

AvPORTS provides professional expertise in a variety of areas beyond that of the typical general aviation airport manager. These areas include all aspects of airport management, airline support, financial engineering, franchising/concessions, facility management, and facility development.

American Airports Corporation

Founded in 1997 and based in Santa Monica, California, American Airports Corporation (AAC) is one of the largest general aviation airport management companies in the country. AAC develops and owns aviation facilities and FBO facilities. AAC partners with airports to bring efficiency and cost-effectiveness to airport operations. AAC provides a comprehensive program that focuses on underutilized assets that offer an opportunity for improved efficiencies, increased returns, and expanded economic opportunities. The company also provides financing and development to joint venture partners (*36*). AAC manages five airports and one FBO. The airports include all airports owned by Los Angeles County.

The airports managed by AAC include

- Brackett Field Airport, California (POC);
- Compton/Woodley Airport, California (CPM);

- San Gabriel Valley Airport, California (EMT);
- General William J. Fox Airfield, California (WJF);
- Whiteman Airport, California (WHP); and
- Clinton National Airport, Little Rock, Arkansas (LIT).

AAC's primary focus is threefold (*36*):

1. Enter into a long-term lease or management contract for an existing airport,
2. Acquire individual land parcels and buildings at airports, and
3. Acquire existing single and multilocation FBO facilities.

To accomplish this, AAC can either (1) enter into a long-term lease agreement, (2) enter into an operating agreement, or (3) purchase the facility outright. AAC has provided profiles or criteria for both airports and individual properties on which they focus. The airport profile consists of the following characteristics:

- Reliever and general aviation airports in metropolitan areas with a population of 50,000;
- Areas with demonstrated growth in population, business, and/or aviation needs;
- Resort areas with commuter or corporate aviation services;
- Airport sizes of 100 acres; and
- Runway lengths of 5,000 feet or more or the ability to acquire additional land to extend the runway.

The characteristics of individual properties and FBOs that AAC is looking for include

- Long-term land leases for all types of aviation properties;
- Terminal and FBO buildings;
- Executive and corporate T-hangars;
- Maintenance and business-related hangars;
- Cargo and other aviation support facilities; and
- Any development opportunities related to the above.

AAC makes clear that its main goal is to enhance the value of the airport through

- Rehabilitation/upgrades of existing structures,
- Development of vacant or underutilized land,
- Promotion of aviation and aviation services, and
- Actively seeking acquisition opportunities.

Texas Aviation Partners

Texas Aviation Partners was founded in 2007 and is based in San Marcos, Texas, south of Austin (*37*). Texas Aviation Partners works with airports to provide personalized and efficient services through its team of proven, experienced leaders. The company currently manages three airports and an FBO facility:

- San Marcos Regional Airport (HYI),
- Pearland Regional Airport (LVJ),
- North Texas Regional Airport–Perrin Field (GYI), and
- GTU Jet, Georgetown, Texas (GTU).

Texas Aviation Partners works with its partner airports and facilities to promote self-sufficiency through planning, business recruitment, privatization, use of grant funds and increased efficiencies using airport management practices. In the company's work with the airports that it manages, Texas Aviation Partners has increased revenue, coordinated events at the airport, recruited

businesses that subsequently made investments in the airport, secured instrument approaches, and worked with governmental agencies to provide grant funds to the airports.

TBI Airport Management, Inc. (Airports Worldwide)

Airports Worldwide, a privately held, multinational company with investments and operations in airports in the Americas and Europe, was founded in 2008 as ADC & HAS Airports Worldwide. Rebranded in 2014 to Airports Worldwide, the company has its origins in a partnership between Airport Development Corporation (ADC), a pioneer in airport privatization, and HAS Development Corporation (HASDC), the private development affiliate of the Houston Airport System (HAS). In 2002 they created a joint venture company, ADC & HAS Management, to operate the Mariscal Sucre International Airport and build and operate the New Quito International Airport (renamed Mariscal Sucre) in Quito, Ecuador. In October 2013, Airports Worldwide acquired global airport assets in Northern Ireland, Sweden, and the United States from Abertis Airports' TBI Limited (*38*).

Airports Worldwide's staff has 25 years of experience in global transactions that include PPPs and active asset management at several significant airports in Europe, Australia, South America, and the Caribbean. Airports Worldwide has a large and complex profile in airport operations with expertise in operational and commercial turnarounds, development, and finance/investment. The company currently manages airport investments of $400 million at 10 airports that serve 35 million passengers and are served by 35 airlines that fly 290 routes to 40 countries on three continents. These airports also have staffs of more than 700, terminal space in excess of 150,000 square meters, and capital projects of $300 million underway.

The company has either management advisory agreements or operations and management agreements at all its airports. Airports Worldwide currently has equity participation in the following airports:

- Belfast International Airport (BFS), Belfast, Northern Ireland;
- Daniel Oduber Quirós International Airport (LIR), Liberia, Costa Rica;
- Juan Santamaría International Airport (SJO), San José, Costa Rica;
- Orlando Sanford International Airport (SFB), Orlando, Florida; and
- Stockholm Skavsta Airport (NYO), Stockholm, Sweden.

Additionally, the company owns TBI Airport Management (TBI AM), which has operating and management contracts with the following U.S. airports:

- Atlantic City International Airport (ACY), New Jersey;
- Burbank Bob Hope Airport (BUR), California;
- Hartsfield–Jackson Atlanta International Airport (ATL), Georgia;
- Middle Georgia Airport (MCN), Georgia;
- Macon Downtown Airport (MAC), Georgia; and
- Raleigh–Durham International Airport (RDU), North Carolina.

The two airports in Georgia are both general aviation airports according to the FAA Asset Study. Middle Georgia Airport is classified as a regional airport while Macon Downtown Airport is classified as a local airport. Middle Georgia Airport has had some commercial passenger service in recent years. The company provides management services to operate, administer, maintain, and supervise on behalf of the City of Macon.

The company, knowing that airports have multiple functional areas with numerous sources of revenue and costs from a diversity of stakeholders, works to create value through active asset

management. To accomplish this, Airports Worldwide implements an active asset management approach to its investments. This includes

- Revenue enhancement with emphasis on air service development and marketing and commercial income development;
- Cost optimization, operational expense management, and efficiency capture;
- Capital structure optimization;
- Capital program management;
- Project and asset financing; and
- Risk management.

Understanding that airports tend to be more complex than other classes of infrastructure, the company brings specific areas of expertise focusing on an airport's value drivers to create value. Because of its global and multifaceted experience, Airports Worldwide can tailor its solutions to the development and operational needs of each individual airport. Their areas of expertise include

- Ability to deliver across all major airport functions,
- Strong airline relationships,
- Emphasis on commercial development,
- Optimization of operations,
- Focus on customer service, and
- Promotion of a culture of safety and security.

Through its leadership roles in the industry, Airports Worldwide's staff has developed significant relationships with airlines, commercial, facility equipment and service providers, regulatory agencies, governments, and advisers. These relationships enhance the company's ability to understand an airport's needs, develop an appropriate business plan, and execute against it (*38*).

Summary

Airport management companies present a range of valuable services that offer the potential to create and add value to airport properties and facilities. From basic airport management operations to more complex development projects, these firms offer experience that can be leveraged through their business models to increase performance of an airport in different ways. This opportunity is particularly compelling for general aviation airports as all but the largest, busiest facilities are not often in a position to have such a range of expertise on staff at the airport or at the local government that owns the facility.

The cross-trained range of expertise beyond what municipalities have available as well as the ability to address specific and unique airport needs are typical of airport management companies. These companies are typically compensated through fee-for-service arrangements with incentives for performance including attracting new businesses, increasing existing businesses, and implementing cost-saving measures. Of particular note regarding attracting investment at general aviation airports is the expertise in real estate development and private-sector finance in conjunction with airport operations experience; this combination is rare but needed for successful PPPs.

CHAPTER 3

Industry Practices for Attracting Investment at General Aviation Airports: Survey Results

The purpose of this chapter is to provide a brief summary of industry practices associated with private investment in general aviation airports. On the basis of a review of the literature, a few findings have emerged. First, increased policy efforts are clearly being undertaken to help encourage more airports, specifically commercial service, to consider exploring new partnerships with private-sector partners. In fact, a few studies have attempted to study the outcomes of airport privatization, with most finding at least project construction schedule benefits when a private-sector entity takes on a greater role in integrating design and construction practices. However, relatively fewer studies have examined whether the experiences seen in commercial service airports can be applied to general aviation airports, and if so, whether involving the private sector results in any new investment.

Methodology

For this study, the research team developed and administered two surveys. First, researchers administered a screening survey and a detailed survey to gain more information about perspectives from general aviation airport officials. From there, researchers selected five case examples from key airport officials and conducted in-depth interviews with those officials.

The first survey, a preliminary screening survey, aimed to determine whether airport officials had completed a PPP within the past 5 years and was distributed via e-mail to the general aviation community. In addition, this screening survey gathered contact information and other data helpful to gain additional context on the experience that airport had with PPPs.

When the contact list was being assembled, all 50 state aviation directors and all FAA Airport District Office (ADO) managers were contacted. Researchers reached out to the broader general aviation community, including airport managers, and other professionals, through a variety of avenues. These included relevant committees of the American Association of Airport Executives, general aviation industry groups, and state aviation associations. The research team also developed a list of state aviation/airport associations along with contacts for each one. In some cases, the contacts were the elected board members who were also airport managers. In other cases, the contacts included a staff person. Three airport management/development companies were also included in the contact list.

A list of Base Realignment and Closure (BRAC) airports was developed from information from Appendix J of the FAA Airport Compliance Manual (*34*). All BRAC facilities that were then operating as general aviation or nonprimary commercial service airports were contacted. In addition, several officials from the State of Alaska were contacted as the state is home to nearly half of the nonprimary commercial service airports.

Several states and associations responded by further distributing the screening survey link to airports in their states and their member airports, respectively. This distribution provided a broader reach than the initial e-mail distribution.

As shown in Table 5, the screening survey was sent to 664 airport managers and aviation professionals with the intent of reaching out to a broad and diverse general aviation community to seek input on airports that have been involved in projects with private partners.

The research team received input from several state directors, FAA ADO managers, and individual airport managers and professionals. Some respondents sent names of airports for follow-up while others completed the screening survey, which was included in the initial contact email. Thirty-nine airports participated in the screening survey with 26 completing it. The research team also reached out to and conducted interviews on the topic with industry experts in privatization, airport law, and airport management/development.

Following a review of the screening survey results, researchers sent the more detailed primary survey to those airports completing the screening survey that (1) indicated that they had experienced a PPP within the past 5 years and (2) indicated that they would agree to participate in the study.

Twenty airports were sent the primary, more detailed survey. As with the screening survey, this second survey was provided to them online with an option to receive one in the mail. Of the 20 airports sent the primary survey, 12 completed it to some extent. Eight completed it in its entirety. The case example airports were selected from the group of respondents with the intention of including representation from the various asset categories of airports. These results are shown in Table 6. The screening survey was the initial effort to cast a wide net. The number of people receiving the screening survey link is not discernable because original recipients forwarded the link to colleagues and airports; the survey was designed for that purpose.

As discussed, the screening survey was developed with web-based software. Once the survey was developed, it was distributed via e-mail to addresses provided by key aviation associations, panel members, and other contacts within the U.S. airport industry. Completed responses from airport executives from around the United States and from different FAA airport types are shown in Figure 2 and 3, respectively.

Table 5. Screening survey e-mail contacts list.

e-mail Contact Group	Number of e-mails Sent
State aviation directors	50
FAA ADO managers	24
Industry Groups	
AAAE chapter	20
AAAE General Aviation Committee	169
AAAE Finance Committee	102
AAAE Corporate Committee	54
AOPA	7
NATA	2
NBAA	6
State airport groups	83
BRAC airports	18
Nonprimary commercial service	66
Alaska (nonprimary commercial service)	60
Airport management/development companies	3
Total	664

Table 6. Survey distribution and completion results.

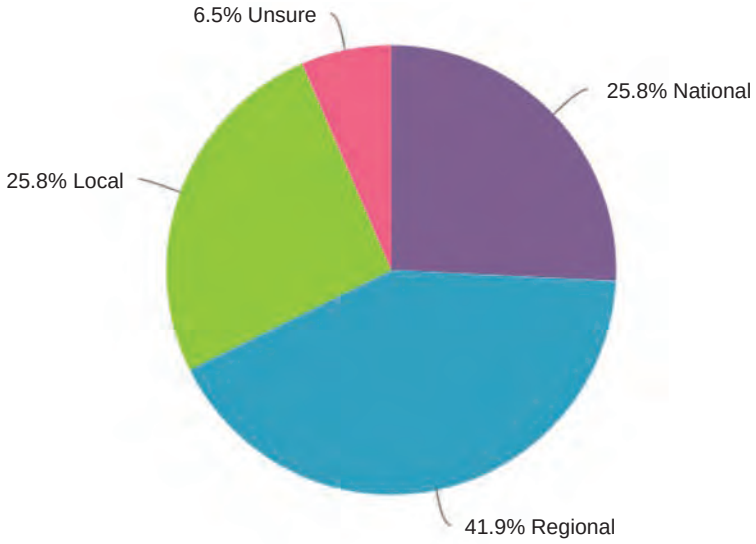
Survey Type	Surveys Sent	Surveys Completed	
		Partial	Completed
Screening	664[a]	39	26
Primary	19	4	8

[a]This number represents the number of contacts sent as outlined above. The actual number of those receiving the screening survey is larger because others forwarded the screening survey link.

Regarding the level of experience of general aviation airport managers with PPPs, results from the screening survey show at least some experience with administering these projects. For example, researchers asked the following question to study participants: "Within the past 5 years, has your airport or airport sponsor entered into a PPP agreement with a private- or public-sector entity?" Approximately half, or 56 percent, of respondents answered "yes," while 30 percent answered "no," with 13 percent of respondents answering "unsure."

Regarding the motivation for pursuing a PPP, airport officials provided a number of reasons, with a fairly even distribution of both management and operations motivations. Of the respondents who replied "yes" to experience with PPPs, researchers asked whether the purpose of that PPP was the construction of facilities (e.g., terminal buildings, FBO buildings, hotels, commercial/office buildings, etc.). Other common responses included the operation of an FBO, service contracts, the management and/or operation of one or more specific airport-owned facilities, and the management of the airport itself. Parking services received the lowest number of responses. A summary of the response to why general aviation airports pursued a PPP—specifically responses to the question "What was the subject/purpose of the PPP? (Check all that apply.)"—is shown in Figure 4.

Figure 2. Map of completed screening survey responses.



Value	Percent	Responses
National	25.8%	8
Regional	41.9%	13
Local	25.8%	8
Unsure	6.5%	2
		Total: 31

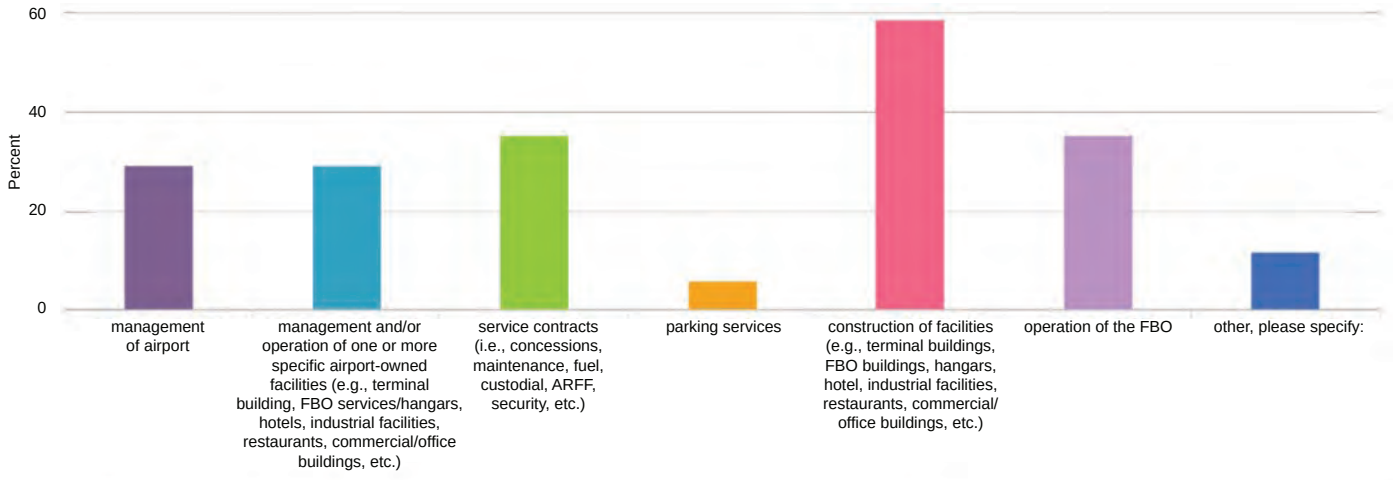
Figure 3. Screening survey responses by FAA airport category.

Finally, regarding the drivers for why airport officials decided to pursue a public-private partnership, responses varied significantly. The final question of the screening survey asked the following: "What was important in terms of driving your decision for pursuing a PPP or arrangement at your airport? (Check all that apply.)" The results to this question are presented in Table 7. A plurality of responses indicated "access to private capital for development" and the ability to "secure long-term efficiencies in operation and maintenance and enhance customer service."

The screening survey results from Figure 4 and Table 7 suggest that, broadly, while PPPs were sought for a variety of reasons, they were mostly driven by management and operational needs. The section that follows provides additional information on reasons why general aviation airports decided to pursue a PPP.

Consolidated Survey Results

This synthesis report relied, in part, on the results of a two-step survey process that was designed to help identify general aviation airports that have participated in PPPs in the past 5 years. The screening survey identified airports in which a more detailed survey was sent. While the number of airports that ultimately completed the primary survey was small (12), the results undoubtedly provide valuable information as to the purpose, benefits, and value of engaging in PPPs. The following insights were provided by the responses to the survey.



Value	Percent	Responses
management of airport	29.4%	5
management and/or operation of one or more specific airport-owned facilities (e.g., terminal buildings, FBO services/hangars, hotels, industrial facilities, restaurants, commercial/office buildings, etc.)	29.4%	5
service contracts (i.e., concessions, maintenance, fuel, custodial, ARFF, security, etc.)	35.3%	6
parking services	5.9%	1
construction of facilities (e.g., terminal buildings, FBO buildings, hangars, hotels, industrial facilities, restaurants, commercial/office buildings, etc.)	58.8%	10
operation of the FBO	35.3%	6
other, please specify: (click to view)	11.8%	2

Figure 4. Subject/purpose of PPP agreement from screening survey responses.

The primary, more detailed survey was completed by primarily airport managers from an even distribution of national, regional, and local airports. For the respondents, the primary purpose of the public-private partnership was for the management of the airport, the construction of facilities or the management or operation of a facility. The project delivery methods used were primarily characterized as management contract, build-operate-maintain, or build-to-suit. The type of contracting process used was most typically a one-step process;

Table 7. PPP motivations screening survey responses.

Response	Number
Access private capital for development	9
Secure long-term efficiencies in operation and maintenance and enhance customer service	9
Stimulate airport activity, including air service (e.g., charter and/or scheduled, if applicable)	7
Increase airport revenue/funding	7
Introduce more innovation and creativity	5
Shift the risk of debt, capital development, and/or operations to private sector	5
Accelerate project delivery and reduce construction costs	3
Extract up-front or ongoing payment for the airport asset (i.e., asset monetization)	2
Reduce reliance on general tax levies/traditional sources of funding	2
Increase airport staff capabilities/manpower	2
De-politicize airport decision-making	1
Other	2

competitors submitted all information at one time, and a bid was selected. The procurement method most utilized was the best value approach, followed by qualifications-based. The FAA grant assurances were an important consideration and were frequently incorporated into lease agreements.

The respondents provided several reasons for pursuing a PPP. The most prominent (more than 50 percent of the respondents) reasons given were

- Access to private capital for development;
- Securing long-term efficiencies in operation and maintenance;
- Improvement of operational efficiencies;
- Stimulated airport activity;
- Introduction of more innovation and creativity;
- Enhanced customer service;
- Reduced reliance on general tax levies and other traditional sources of airport funding; and
- Better use of limited airport resources.

Other reasons that are worth mentioning but indicated by slightly less than 50 percent of the respondents include

- Shifting of the risk of debt, capital development and/or operations to the private sector and
- Increased airport revenue and funding.

The most common methods used to attract or identify potential investors were the request for qualifications and the request for proposals. Incentives offered to the private partners included the following:

- Long-term lease,
- Nontraditional grant funds (other than FAA/aviation department),
- Contractor use of hangar revenue for airport maintenance, and
- Business model changed from a fuel-centric business to a real estate–centric model.

The airport respondents also structured the partnerships in different ways. The following approaches were utilized:

- Paying down the total cost of the project (sharing the financial risk);
- Using typical real estate investment strategies;
- Utilizing a state grant to offset total costs of construction for the tenant, with resulting increased revenues for the airport and lower rent for the tenant; and
- Meeting in the middle and providing incentives based on the current supply/demand situation.

The airports also provided insight into the benefits of the partnership. Those most mentioned were

- Innovative infrastructure solutions and
- Transfer of project-related risk, increased quality, and increased efficiencies.

The limitations most noted by the airports include

- Greater possibility of unforeseen challenges,
- Limited government flexibility, and
- Perception of private-sector takeover by the public.

The survey sought to address several questions pertaining to various types of risk including those associated with financing, design and construction, operations and maintenance, and revenue. Because of the small number of respondents and varying types of partnerships, there was not enough information provided to include additional meaningful discussion on risk. While

various risks were noted in the responses, these risks were dependent on the structure of the particular partnerships entered into, which varied across a small number of respondents.

Airports also indicated to what extent certain factors played in the success of the partnership. Those factors determined to be very important or somewhat important to more than 50 percent of the respondents include (in order of importance)

- Airport rules, regulations, and minimum standards;
- Local design and building requirements;
- Federal design and building requirements; and
- FAA grant assurances.

Survey participants were also asked to provide the three most important factors or elements of their particular project that contributed its success and those that impeded or threatened its success. These were open-ended questions and no choices were given from which to select. The unedited responses for each of the questions are as follows:

Factors/elements of success

- Transparency
- Financial imperative
- FAA willingness
- Funding
- Communication
- Having goals
- Financing
- Full-service development
- Product quality
- Selection of engineering consultant

Factors/elements that impeded or threatened success

- Grant match loan
- City council approval
- Tenant negotiations
- Historical losses
- Old leases
- Old school government mindset
- Working in silos
- Private entity proceeding without approvals
- Last minute requests by private entity
- Gaining trust
- Weather

Using the responses from the primary survey, the research team developed more detailed case examples of PPPs at selected general aviation airports. This task was done to provide a more detailed understanding of projects that were initiated or completed and engaged a private partner in the development or operation. Five case examples are presented in the following chapter.

CHAPTER 4

General Aviation Airport State of the Practice: Case Examples

To provide more detail on project structure, function, benefits, and risks, a summary of several case examples is presented in the sections that follow. These case study examples were selected on the basis of feedback from the screening and survey results discussed in Chapter 3 and in consultation with the study panel. The following airports were case examples:

- Fort Worth Meacham International Airport,
- Crater Lake–Klamath Regional Airport,
- McKinney National Airport,
- Morristown Municipal Airport, and
- Cecil Airport.

The information about them has been provided in the survey responses with some supplemental information provided from other sources including interviews and other published materials. A summary of each airport includes (1) the key stakeholders involved; (2) contracting, lease, and financial considerations; (3) the benefits to the airport; and (4) key lessons learned. A consolidated summary of the results is presented in the conclusions (Chapter 5) of this report.

Fort Worth Meacham International Airport

Overview

Located 5 miles north of downtown Fort Worth, Meacham International Airport serves as the city's oldest operating airport, dating to 1925 (*39*). Since that time, the airport's facilities have been remodeled in subsequent decades. Today, Meacham's facilities include three full-service FBOs, aircraft maintenance facilities, flight schools, and rental car facilities. As shown in Table 8 and Figure 5, Meacham is classified as a national airport and consists of two runways on a total of 745 acres.

On the basis of interviews with key officials, Meacham International Airport has entered into several public-private partnership arrangements over the past 5 to 10 years. Specifically, airport officials have noted that they have entered into agreements whereby the private sector receives a long-term lease on airport property in exchange for paying for the construction of building new hangars for general airport use.

Key Stakeholders

Key stakeholders for Meacham International Airport include

- City of Fort Worth, Texas;
- Texas Department of Transportation—Aviation Division; and
- American Aero FBO.

Table 8. Fort Worth Meacham Airport key facts.

Type	Information
IATA airport code	FTW
Airport sponsor	City of Fort Worth, Texas
Asset category	National
Based aircraft	410
Operations	160,000
Runway information	16/34 7,502 x 150 (concrete) 17/35 4,005 x 75 (asphalt)
Acreage	850

Source: USDOT, FAA, *Airport Master Record—Forth Worth Meacham International Airport;* e-mail correspondence with Fort Worth Meacham International Airport officials, 2018.

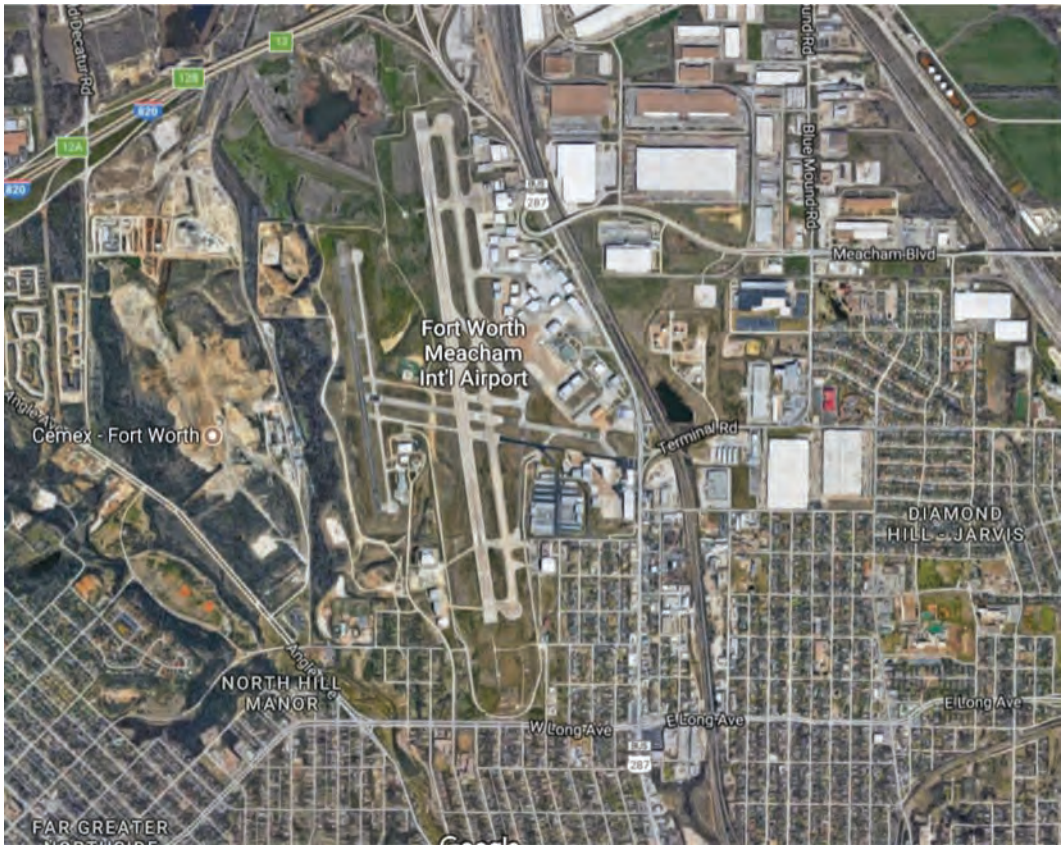


Figure 5. Fort Worth Meacham International Airport aerial map. (Source: Google Maps.)

Contracting, Lease, and Financial Considerations

The financial considerations for this airport can involve more typical responses. Regarding the project delivery method, officials noted that they decided to move forward with the build–operate–maintain option. Regarding the procurement method, the best value method was the method chosen to move forward with.

Regarding methods and incentives used to attract potential investors, Meacham officials noted that a request for proposal (RFP) process was used, with long-term lease and existing aircraft apron as incentives. In addition, this airport did enter into a PPP lease agreement: specifically, airport officials noted that a performance bond was required until completion for most of its PPP projects. Regarding the airport's process for approval of the proposed lease terms, airport officials noted that they reached approval of these lease terms through a negotiation process.

Developing PPP contracts inherently involved managing, and in some cases mitigating, risk. Regarding the financing risks that were encountered, airport officials noted complexities associated with city purchasing procedures and the need to deal with those risks. Regarding construction risks, airport officials noted the need to mitigate challenges related to coordination and communication between design and construction processes, utility and right-of-way infrastructure relocation, and permitting challenges. Finally, regarding operation, maintenance, and revenue risks, airport officials noted challenges associated with facility maintenance.

Benefits to the Airport

According to Meacham airport officials, PPPs were pursued for, and resulted in, many positive benefits to the airport. Regarding reasons for pursuing an agreement, airport officials noted that this agreement (1) stimulated airport activity, including air service and airline competition; (2) introduced more innovation and creativity; (3) increased airport revenue and funding; (4) reduced reliance on general tax levies and other traditional services of airport funding; (5) improved operational efficiencies; and (6) made better use of limited airport resources, including personnel.

As found in the literature review, Meacham officials reiterated the importance of reaching balanced negotiations between both parties as a way to ensure a successful PPP agreement. Regarding how officials sought to structure PPP agreements advantageous for both parties, airport officials noted that reaching negotiation terms "in the middle" was needed. Regarding what key elements should be in a good lease, Meacham officials noted the importance for airport officials to develop a good lease template and have a thorough lease policy. These officials also noted that a lease should cover all the terms, insurance, mandatory improvement requirements, rates, and other issues.

Lessons Learned

Regarding the more technical lessons learned of entering into a PPP agreement, Meacham officials considered local design and building requirements and airport rules, regulations, and minimum standards to be most important to the success of the PPP. State design and building requirements, federal design and building requirements, subordination and/or estoppel agreements, remuneration and remediation cost agreements for abandoned projects, and cleanup needs were considered less important toward contributing to the success of the PPP agreement. Other aspects were critical to helping ensure PPP success. For example, Meacham officials noted that funding, communication, and clear goals contributed to project success.

In addition to success factors, there were several "lessons learned" that could help other officials negotiate with private partners to attract investment in general aviation airports. For

Table 9. Crater Lake–Klamath Regional Airport key facts.

Type	Information
IATA airport code	LMT
Airport sponsor	City of Klamath Falls, Oregon
Asset category	Regional
Based aircraft	104
Operations	55,071
Runway information	07/25 5,258 x 100 (asphalt) 14/32 10,301 x 150 (concrete)
Acreage	1,166

Source: USDOT, FAA, *Airport Master Record: Crater Lake–Klamath Regional Airport;* e-mail correspondence with Crater Lake–Klamath Regional Airport officials, 2018.

example, a few lessons learned include issues revolving around "working in silos" and challenges attributed to changes as the project is underway. Overall, Meacham airport officials noted that the transfer of project-related risk and increased project quality were two major benefits of partnering with a private-sector partner.

Crater Lake–Klamath Regional Airport

Overview

As shown in Table 9 and Figure 6, Crater Lake–Klamath Regional Airport, a regional airport located near Klamath Falls in Southern Oregon, has entered into a PPP agreement with multiple private partners. This project provided for the construction of a maintenance hangar. The project was delivered using a build-to-suit method. The reviews, approvals, inspections, and acceptance were provided by the City of Klamath Falls. The airport department hired a design engineer to design the hangar.

Figure 6. Crater Lake–Klamath Regional Airport aerial map. (Source: Google Maps.)

FAA was not involved in the lease agreement, but FAA grant assurances were incorporated into the agreements. The construction of the hangar had to meet the grant criteria of the State of Oregon, Department of Transportation, ConnectOregon VI grant program. The airport will manage the project. To secure a long-term lease, permanent improvements were required. To determine the market feasibility of this project, the airport relied on historical trends and needs based off the airport's master plan. This project is not yet completed.

Key Stakeholders

The key stakeholders in this project were

- City of Klamath Falls;
- Crater Lake–Klamath Regional Airport;
- EAL Leasing, Inc.;
- Klamath and Lake Counties;
- State of Oregon, Department of Aviation; and
- State of Oregon, Department of Transportation.

Contracting, Lease, and Financial Considerations

The airport utilized a request for qualifications for an engineering/design firm to design the hangar. Regarding the construction contracting process, the airport requested bids for construction of the hangar. Construction was based on low bid. The lease to the tenant was based on a request for interest. The airport offered incentives totaling $2.8 million utilizing a State of Oregon, Department of Transportation ConnectOregon grant. The lease agreement did not address any costs associated with project abandonment; however, the agreement did stipulate that the private tenant provide $200,000 in improvements within the first 5 years of the lease. There was a high expectation that the hangar could be leased because of the interest in the project. The airport drafted a lease agreement before negotiations with the tenant. The lease has a 30-year term with options for two 5-year renewals. The lease agreement was approved by the City Council in early November 2017.

Regarding risks, the airport noted that financing risks associated with this project included changes in construction costs. The airport did not transfer any design or construction risk on this project. The facility was proving costlier to construct than originally planned because of different standards/aircraft being identified than originally thought, requiring a more robust fire suppression system to be designed.

Benefits to the Airport

The reasons the airport pursued this project agreement are as follows:

- Access to capital;
- Stimulated airport activity;
- Enhanced airport customer service;
- Shift of risk of debt, capital development, and/or operations to private sector;
- Increased airport revenue and funding;
- Reduced reliance on general tax levies and other traditional sources of funding; and
- Better use of limited airport resources.

This arrangement was a mutually beneficial partnership between the private tenant and the airport. The airport received a state grant to offset the full cost of construction, with the tenant to pay only the airport's grant match portion. The airport won with increased revenue, and

the tenant won with lower rent. The airport also stated that the construction of the hangar was intended to encourage development along the eastside of the airport, and the tenant was expected to assist in increasing economic activity at the airport.

The airport noted that key elements of a good lease began with the standard provisions and included disposition of improvements and term extensions. The airport considered the transfer of project-related risk as a benefit of partnering with a private-sector partner.

Lessons Learned

The airport recognized limitations of such an arrangement as including greater possibility of unforeseen challenges, limited government flexibility, loss of facility control, and potentially not enough competitive, high-quality bids. In this project, the airport found local design and building requirements important in contributing to the success of the project. Airport rules, regulations, and minimum standards along with the FAA grant assurances were seen as important.

McKinney National Airport

Overview

This project provided for the development of a 40,000 square-foot hangar, increased automobile parking, and a new terminal building (shown in Figure 7). It was a build-to-suit project. There was no FAA or state involvement in the project. The private partner provided the initial financing as well as the engineering, design, and construction. The partner also provided inspections. The public partner, the city, provided some (a percentage to be determined) of the funding to reduce the overall costs of the project. The city also agreed to lease–purchase the facility from

Figure 7. McKinney National Airport aerial map. (Source: Google Maps.)

the private partner until it is paid in full. The city approved the development site, facility design, and cost, and inspects and accepts the project. FAA grant assurances were incorporated into the agreements.

Table 10 summarizes facts about the airport.

Regarding the ongoing management arrangement, the private partner will hold title until the public partner pays off the lease–purchase amount. The private partner (developer) will own the facility until it is completed and turned over to the city (McKinney Air Center). McKinney Air Center, the city-owned FBO, would pay a set fee to the developer to operate it including controlling the lease space, maintenance, and operation including aircraft movements.

The McKinney National Airport is overseen at the city level by the deputy city manager, who works to gain support of the local funding entities for airport projects. The local funding options available to the airport go beyond typical city funding. They include economic development funds from the McKinney Economic Development Corporation and the McKinney Community Development Corporation, both utilizing sales tax revenues dedicated for specific economic development uses. Funding also came in the form of a loan from the city's solid waste fund, which required approval from both the city manager and city council.

Key Stakeholders

The key stakeholders in this project are

- McKinney National Airport;
- McKinney Community Development Corporation;
- McKinney Economic Development Corporation;
- City of McKinney;
- Western, LLC; and
- KAS Engineers.

Contracting, Lease, and Financial Considerations

The airport used a two-step contracting process for this project. A short list of potential bidders was established on the basis of qualifications. The short-listed firms then submitted a bid for the project. The city used a request for quotation (RFQ) and its own procurement procedures. No incentives were provided as part of this project. The lease agreement did address costs associated with lease abandonment, but this issue was handled at the city level. The entire arrangement was handled through both a lease agreement and an operating agreement for the facility.

The airport has not encountered or noted any financing, design and construction, or operating and maintenance risks. The project is underway and not generating revenue.

Table 10. McKinney National Airport key facts.

Type	Information
IATA airport code	TKI
Airport sponsor	City of McKinney, Texas
Asset category	National
Based aircraft	287
Operations	134,000
Runway information	18/36 7,002 x 150 (concrete)
Acreage	778

Source: USDOT, FAA, *FAA Master Record, McKinney National Airport*; e-mail correspondence with McKinney National Airport officials, 2018.

The airport noted several reasons for pursuing this agreement with a private partner. These include

- Access to private capital for development;
- Stimulated airport activity;
- More innovation and creativity;
- Long-term efficiencies in operation and maintenance;
- Enhanced airport customer service;
- Shift of risk of debt, capital development, and operations to the private sector;
- Accelerated project delivery and reduced construction costs;
- Increased airport revenue and funding;
- Reduced reliance on general tax levies and other traditional sources of airport funding;
- Improved operational efficiencies; and
- Better use of limited airport resources.

Benefits to the Airport

The airport also structured this partnership, by paying down the total cost of the project, in a way that essentially shared the financial risk of the project and made it advantageous to both parties. Regarding the lease agreement, the airport noted that its attorney was familiar with airport grant assurances, minimum standards, and airport operating and lease agreements and that all the appropriate requirements were built into the lease agreement.

The airport reported the following as benefits associated with partnering with the private sector:

- Innovative infrastructure solutions,
- Shorter construction schedule,
- Risks better understood from the beginning of the project,
- Transfer of project-related risk,
- Increased quality,
- Increased flexibility of financing options,
- Increased efficiencies, and
- Response to elected officials' desire to optimize the use of private investment in the airport.

Lessons Learned

The airport also reported some limitations in partnering with the private sector. These included

- Increased financing costs,
- Greater possibility of unforeseen challenges, and
- Additional costs for private-sector services.

The airport also noted that the airport's rules, regulations, and minimum standards along with their local design and building requirements were very important in the success of the partnership. Subordination and/or estoppel agreements along with the remuneration and remediation cost agreement for abandoned projects were somewhat important.

The three biggest factors that contributed to the success of the project were

1. Financing,
2. Full-service development, and
3. Product quality.

The airport stated that to avoid threats to the success of the project or otherwise impeding the timeline or success of the project, it was necessary to gain trust. This was the airport's first PPP. The airport recommended the structure used for this project especially for airports with cash flow restrictions.

Morristown Municipal Airport

Overview

Morristown Municipal Airport (MMU) is a national, reliever airport located in Morris County, New Jersey. The airport is located approximately 30 miles from New York City and provides an alternative to Teterboro Airport for those traveling to the New York–New Jersey area. MMU provides services for businesses located in the New York City metropolitan area, where approximately 50 Fortune 500 companies have their headquarters or major facilities (*2*). Because of the proximity of such clientele, MMU has a strong incentive to provide good customer service and aviation enhancements. Additional information about Morristown is summarized in Table 11 and Figure 8.

During the late 1970s and early 1980s, MMU spent several years operating at a loss, which led to the accumulation of a large debt for the town. This debt meant that capital improvements were not completed and the overall state of repair of the airport was in decline. Users were threatening to end business with the airport, and FAA had demanded that improvements be made and that current FAA standards be met and had removed grant eligibility until such time as the condition improved.

Morristown recognized that it did not have the necessary expertise to run the airport at a profit and complete the upgrades. The town began to search for an alternative way to manage, operate, and maintain the airport, with key objectives being the retirement of the long-term debt, completing the necessary upgrades to the airport infrastructure with the aid of both state and federal grants, and boosting the profile of the airport to be an economic catalyst for the region (*1*). DM Airports, Ltd. (DM), an affiliate of the DeMatteis organizations, won the contract in 1982 and signed a long-term lease with the town. The deal was structured with a great flexibility: the agreement was closer to full privatization on the public–private spectrum.

However, the lease did not change the ownership of the airport or diminish the town's rights and powers. The lease agreement provided that DM pay off all existing debt over the term of the lease, as well as manage and operate the airport, complete renovations to the infrastructure, and boost the overall revenue and investment in the airport.

The agreement was structured to provide the greatest flexibility for management, operations, and capital projects or renovation decisions to the private entity; therefore, transferring all financial risk of the airport away from the town. Morristown receives annual rental payments (equal to services provided as required by the FAA) from DM but does not receive any of the revenue

Table 11. Morristown Municipal Airport key facts.

Type	Information
IATA airport code	MMU
Airport sponsor	Town of Morristown, NJ
Asset category	National
Based aircraft	183
Operations	75,331
Runway information	05/23 5,998 x 150 (asphalt)
Acreage	625

Source: e-mail correspondence with Morristown Municipal Airport officials, 2018.

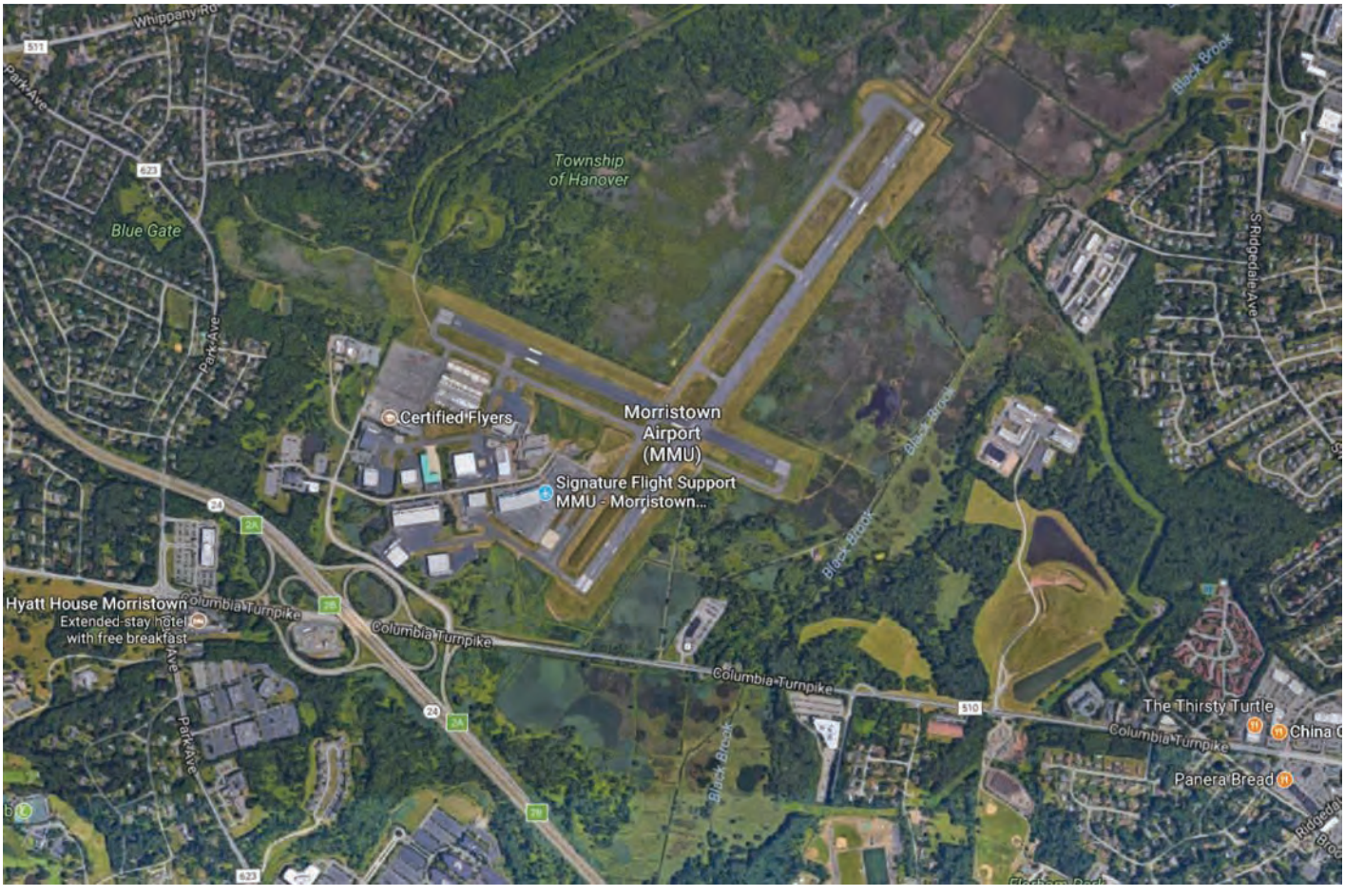


Figure 8. Morristown Municipal Airport aerial map. (Source: Google Maps.)

generated. The rental payments are used to provide the services that the town still covers, such as police, fire and emergency response, site planning, code enforcement, and grant accounting. As the sponsor, the town maintains control over approval and processing of grants and site plans, but the agreement requires the cooperation of the town with DM on such matters.

Since the beginning of the lease term, DM has reverted from contracting out management to managing in-house to realize cost savings; the firm has implemented capital improvements to meet FAA requirements and market demand; this work in turn has improved customer experience through these upgraded facilities and improved rates. DM has turned to creative user fee agreements to provide U.S. Customs and Border Protection for international flights as well as fostering strong community relations by partnering with local groups and promoting the airport throughout the local community. MMU is now a financially self-sustaining facility that competes for private aviation business with similar general aviation airports in the area; the deal with DM has turned the airport into an economic catalyst for the region.

Key Stakeholders

They key stakeholders in this project are

- The Town of Morristown;
- Hanover Township;
- DM Airports, Ltd; and
- FAA.

The two main stakeholders are Morristown and DM Airports, Ltd. Morristown retains ownership of the property and land, while receiving rental payments from DM, and DM Airports is responsible for all maintenance and operations except the provision of police, fire, emergency medical response, and the certain site plan approvals and grant administration through the state and FAA (*2*). Certain approvals by FAA were also required; however, this agreement was reached before the current formal policy on privatization was enacted by FAA.

Contracting, Lease, and Financial Considerations

The town utilized a one-step bid process whereby all competitors submitted a complete bid package before a final company was chosen. The town evaluated the candidates on the basis of best value and chose DM Airports, Ltd., to fulfill the management contract. The long-term nature of the lease term was deemed necessary by all parties in order to retire the debt accumulated by the airport and to allow for the recovery of costs associated with the new capital investments that were required to bring the airport back into compliance and to meet the intended objectives.

This factor also provides for the time to develop and renovate the airport while working with FAA for grant funding for improvements. Initially, DM entered the agreement in the hopes of deriving revenue from real estate because of the developable land on the property; however, wetland limitations and the expansion of Route 24, requiring 11 acres of airport property, eliminated the possibility for large-scale commercial development (*2*). DM retained management of the airport because the firm was already realizing revenue gains from its enhancements, and the unique positioning of MMU provided a competitive market for aviation. These revenue gains were in part generated by switching from a fuel-centrist business model to a real estate business model, through the development of the remaining land and facilities.

Benefits to the Airport

The town of Morristown pursued the PPP because of the conditions of the airport and the extensive amount of debt that had accumulated; DM provided access to private capital for development and rehabilitation efforts, as well providing the town with ongoing payments for its asset. So far, the agreement has managed to stimulate activity at the airport, improve facilities, and improve the customer experience. Morristown benefits from the expertise of the private entity as well as the risk transfer to the private sector. The rental payments allow Morristown to recover all costs of the services it provides to the airport, and currently the facilities are being kept in an excellent state of repair. Hanover Township also benefits from land tax revenue that the municipality did not previously pay.

The airport noted several reasons for pursuing this agreement with a private partner. These include

- Access to private capital for development;
- Recovery of town costs;
- Stimulated airport activity;
- More innovation and creativity;
- Long-term efficiencies in operation and maintenance;
- Enhanced airport customer experience;
- Shifted risk of debt, capital development, and operations to the private sector;
- Accelerated project delivery and reduced construction costs;
- Increased airport revenue and funding;
- Reduced reliance on general tax levies and other traditional sources of airport funding;

- Improved operational efficiencies; and
- Better use of limited airport resources.

Lessons Learned

MMU's management contract is an early example of the usage of PPPs at general aviation airports; a unique set of circumstances drove the town to seek expertise from the private sector, but there are still lessons to be learned and best practices to be derived from this example. DM Airports identified transparency, financial imperative, and FAA cooperation as three of the most important factors in ensuring the success of this PPP. The clear need for private investment drove the deal forward, as well as the cooperation on the part of FAA, which also wished to see improvements at MMU.

In terms of threats to success, DM Airports cited the historical losses and therefore financial standing of the airport, as well as a lack of precedent for such arrangements with FAA, and old leases that had to be renegotiated because of the new arrangement. Financial considerations were a key factor in both creating the need for this type of arrangement and also threatening its success. DM Airports took all of MMU's debt after the lease was signed and therefore needed to generate revenue to pay this down.

Cecil Airport

Overview

Cecil Field is a former naval air station located in Jacksonville, Florida. In 1999, the base and all its airport related property were transferred to the Jacksonville Aviation Authority (JAA) under the 1993 Base Realignment and Closure Act. (Other property of the former naval air station was turned over to the City of Jacksonville for its use.) JAA then had the task of bringing the aviation assets of the former naval air station up to modern standards. Cecil Airport, as it is commonly known, is now the eighth licensed commercial spaceport and houses aviation training facilities operated by the Florida State College Jacksonville (FSCJ). At this time, FSCJ was engaged in operating an aviation center of excellence at the Cecil campus, which offered educational programs for students interested in the aviation field.

In 2007, FSCJ approached Cecil Airport and JAA to suggest a partnership to create a state-of-the-art coating facility and maintenance hangar at Cecil Airport. [The services performed—maintenance, repair, or overhaul (MRO)—are known as MRO activities, which the documents described as aircraft painting, coating and other maintenance, modifications, conversion, repair, and overhaul activities.] This partnership would allow the college to provide training in aviation coating as well as practical experience to students. JAA understood the benefits of such a facility from previous industry needs assessments; however, the authority wanted to ensure that there was demand in the community for such a specialized coating bay. At the time, FSCJ was competing for a state grant from the Florida Departments of Education and Technology that would provide $10 million in funding. JAA agreed to match the grant if won, and so both signed a letter of intent to that effect. FSCJ won the grant, and the two parties moved forward on the construction of the hangar. This project involved JAA leasing the land to FSCJ for the hangar facility, as well as searching for a private tenant for the hangar. The ground lease was executed in 2009 to FSCJ, and operation and management agreements with both the private tenant, Flightstar, and FSCJ were executed shortly thereafter. All three parties had a stake in the design and development of the hangar. Further, because this was a somewhat complex transaction, setting forth the roles of parties was crucial in understanding which party would be responsible for the various activities.

This agreement led to the construction and outfitting of a 130,000 square foot hangar with three bays: one for the coating facility and two heavy maintenance bays. The agreement between the three parties included a workforce development arrangement that offered job training for the students completing the course through FSCJ. On completion of the course, the students were offered employment with Flightstar (or contractors working for Flightstar) if they wished to continue working at the facility. This arrangement stands today, and the program has been successful at placing students if they so desired. Table 12 and Figure 9 provide a list of key facts and an aerial map of Cecil Airport, respectively.

Key Stakeholders

The key stakeholders in this project are

- JAA,
- FSCJ, and
- Flightstar.

Contracting, Lease, and Financial Considerations

The airport and JAA were approached by FSCJ, which was hoping to secure a state grant from two state departments that would total $10 million. FSCJ proposed building a coating facility that would allow students to train and a private company to perform maintenance. JAA agreed to match the grant if FSCJ were successful and signed a letter of intent to that effect. The aviation authority and FSCJ used design–build to complete the construction of the hangar and convert it to an educational coating facility as well as a maintenance facility. The agreement involved FSCJ entering into a ground lease with JAA and JAA sending out a RFQ and Interest (RFQ& I) to find an operator for the hangar facility. Numerous documents were required in the transaction, with the initial lease between JAA and FSCJ for a 40-year term, and operation and management agreements with both FSCJ and Flightstar. The operation and management agreements were for ten years, with two 10-year extensions. The lease was entered into in 2009, the FSCJ operation and management agreement was executed in July 2010, and Flightstar's agreement was executed in December 2010. At the end of the lease term, JAA will own the facility in its entirety.

One of the key risks with this project was the possibility that JAA would not receive interest in leasing the hangar from a private entity. The three-bay hangar is a large facility that could price out many companies; however, the connection to FSCJ allowed the private company access to coating staff and the coating lab as well as the heavy maintenance facilities. Beginning the project without a lessee was the main risk borne by JAA and FSCJ. However, significant funding and construction began after all documents were in place and thus a lowered risk.

Table 12. Cecil Airport key facts.

Type	Information
IATA airport code	VQQ
Airport sponsor	Jacksonville Aviation Authority
Asset category	Regional
Based aircraft	22 + 69 military
Operations	104,361
Runway information	09L/27R 4,439 x 200 09R/27L 8,003 x 200 18L/36R 12,503 x 200 18R/36L 8,002 x 200
Acreage	6,082

Source: e-mail correspondence with officials familiar with Cecil Airport operations, 2018.

Figure 9. Cecil Airport aerial map.

Benefits to the Airport

The reasons the airport pursued this project agreement are as follows:

- More innovation and creativity,
- Accelerated project delivery and reduced construction costs,
- Access to nontraditional funding through the grant,
- Utilization of available land/real estate, and
- Increased airport revenue and funding.

The agreement allowed the airport to construct a state-of-the-art facility and enter a new market in terms of aircraft coating. JAA had the means to build the hangar and the facilities without the assistance from FSCJ; however, the financial risks and burden of constructing and then leasing the facility would have been much higher. Additionally, JAA would not have received design input from those who would be utilizing the facility; this lack of input could have reduced the marketability of the hangar. JAA noted that one of the core benefits was having all the parties to the agreement included in the design process.

JAA also mentioned the educational element as a benefit of the project; the ability to train and utilize students in the facility was a bonus for all parties, as students gained practical, on-site training and the private operator had a pipeline of new talent upon their graduation. The operation and management agreements contain exhibits regarding the mandatory educational criteria.

Lessons Learned

In terms of lesson learned, the authority feels that it has benefited from having the partners involved in the design process and believes that was important to the success of the project. In terms of design requirements, since the facility is under the primary control of FSCJ and since FSCJ was in charge of the construction, the college had its own standards and inspectors. These standards, higher than the local requirements, added to the overall cost of the project, despite savings in other areas.

Another lesson learned was to have the roles of the parties understood and to address clearly what happens in the event of default by any party, not only in the rent, but the failure to perform the various elements, such as meeting the educational criteria. PPPs are generally complex transactions, and all parties need to understand what-ifs for various scenarios.

JAA stated that the contract did not include a contingency if a private operator was not found. This situation did not pose a significant problem since Flightstar was awarded the contract quickly after the design phase began, but does pose a risk if this model is replicated. Although the design phase was costly, all parties were in place and all documents signed before the biggest expense of actual construction began. Finally, one issue that arose after construction was the lack of adequate parking; JAA had to create additional parking facilities after the hangar opened to accommodate demand.

CHAPTER 5

Conclusions and Future Research

General aviation airports have long faced challenges associated with self-sufficiency, competition for grant funding, increasing revenues, and attracting private investment on their facilities. For many general aviation airports, their primary source of capital funding is from the FAA's Airport Improvement Program or their state's aviation facilities development program. This work sought to help address some of these challenges by examining efforts to attract private investment at general aviation airports through PPPs.

Larger airports and infrastructure in general in the United States are seeing an increased interest from the private sector in entering into PPP agreements. In some cases, these PPP agreements even have involved the transfer of financial, construction, maintenance, and operational risk. Such agreements, especially those that are structured over a medium or long-term basis and have involved the transfer of risk, have provided large airports with increased flexibility. A review of recent literature found this trend to be growing not only for U.S. airports, but also for large airports in Europe and elsewhere.

This synthesis aimed to summarize the current state of the practice of general aviation airports and, specifically, what general aviation airport officials are doing to attract more private investment. While researchers for this synthesis reached out to more than 600 general aviation managers and professionals and received input from more than 40 officials, the limited scope allowed at best only a surface-level understanding of how general aviation airports are partnering with the private sector to finance and deliver needed airport infrastructure.

Findings

Several key findings emerged from this research effort. The review of literature highlighted the fact that most PPPs in aviation are focused on larger, commercial service airports. It also became clear that little has been written and published about general aviation airports and PPPs. There has also been an increase in PPPs at large airports in recent years, as with the surface side of transportation. PPPs are growing more popular as a method for meeting challenges with limited government resources. Still, the public perception is not always positive or often easily understood (*50*).

The survey results report that the airports have entered into PPP agreements with several separate entities or have several key stakeholders, not just one. Airport officials noted working with multiple different stakeholders in their negotiations in developing their PPPs, including working with a mix of private, federal, state, and local partners. In doing so, many survey respondents noted that working with private partners to share risk had helped to increase project financing flexibility and, in some cases, helped the general aviation airport deliver projects on-time and

within the original scope and budget. A few participants did note that change orders during the project duration did cause adverse effects.

Of other interest was the fact that airports entered in PPP for different reasons. More than half of the airports that responded selected eight reasons indicating that they are looking to private partners to accomplish a variety of objectives. There are also differences in how the partnerships are structured, with no clear standard model. As one might expect given the unique nature of general aviation airports, PPPs are structured to meet the needs of the particular airport, using the tools available.

Many airports across several states have turned to the use of professional airport management companies in an effort to accomplish their goals. This activity includes not only managing the facilities but also leveraging their expertise to increase activity and revenue as well as taking advantage of their real estate management and capital development. These firms are often compensated through a fee for service and also incentivized for increased activity and revenue. In many respects, running an airport is very much about managing real estate—knowledge in that arena is paramount.

The survey results also provide some insight on the benefits and limitations of PPPs. Innovative solutions and increased efficiencies can be gained while limited government flexibilities, the misperception of a private-sector takeover of a facility, and unforeseen challenges can be downsides. However, open communication between the stakeholders, transparency throughout the process, and a willingness by government in addressing needs can help make such a project successful.

Future Research

A more comprehensive examination of this topic could help the general aviation community gain a more complete understanding of PPPs and how they best serve general aviation airports and facilitate additional private investment. During the course of this research, it became evident that many general aviation airport officials including some who were just entering into such partnerships this year—were new to PPPs. For this reason, the lessons learned and best practices recommendations have yet to be fully understood.

Additional research could help address questions that arose from this work. This research established that airports are pursuing PPPs for many different reasons and are structuring them in many different ways on an ad hoc basis. Further research could help provide additional guidance to airports looking to attract private investment to meet their needs. This guidance includes the following:

- Identifying the general type of potential private partners (i.e., key stakeholders including developers, leasing companies, potential tenants, economic development agencies, charitable foundations) and the roles that they could play in the arrangement.
- Identifying nontraditional sources (state and local) of project funding and financing that airports can use to facilitate or partner with the private sector (i.e., nonaviation grants/loans, sales taxes, economic development funds).
- Identifying proven and innovative methods and incentives to attract private partners.
- Developing a typology of PPPs for general aviation airports including benefits, limitations, and risks.
- Developing more thorough an understanding of the various types of risks and how best to manage and mitigate them.
- Developing a matrix or selection tool to help match the partnership type with the need, purpose, objectives, and available resources of the airport. For example, the Federal Highway

Administration's Office of Innovative Program Delivery (IPD) recently developed a suite of sketch and detail-level tools and programs that provides tools, expertise and financing to help the transportation community explore and implement innovative strategies to deliver costly and complex infrastructure projects. As part of this program IPD developed a PPP toolkit that addresses federal requirements and four key areas of PPP implementation: legislation and policy, planning and evaluation, procurement, and monitoring and oversight. A similar suite of tools that addresses legislation, planning, procurement, monitoring, and other aspects of PPPs could be developed and tailored specifically for use by the general aviation airport stakeholders.

- Identifying methods to increase the public's understanding and acceptance of PPPs.
- Identifying methods to increase local, state, and federal governments' understanding of PPPs to facilitate agreements better. This area includes a better understanding of the legal, regulatory, and statutory environments around the country for initiating and completing such arrangements. Some states cannot and/or do not participate in PPPs.
- Improving the understanding of alternative project delivery, its relationship to PPPs, and the ability to use such delivery in the airport environment.

Much of this future research could be consolidated to comprise a guidebook for general aviation airports on developing PPPs to provide solutions to several challenges. Many general aviation airports are new to PPPs, as are many others who manage and maintain other transportation assets. Such a document would provide much needed guidance to the general aviation community.

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APPENDIX A

Screening Survey Questions

Introduction

1) What best describes your role?*
( ) Airport manager
( ) Local government official who oversees the GA airport
( ) State airport official
( ) Federal aviation official
( ) Fixed-base operator
( ) Other, please specify: _____

2) Please provide the three letter identifier for your airport.*
_____

3) What FAA airport category describes your airport? (More information on these categories can be found here.)*
( ) National
( ) Regional
( ) Local
( ) Basic
( ) Unsure

4) Within the past five (5) years, has your airport or airport sponsor entered into a public–private partnership agreement with a private or public sector entity? *(Note: The World Bank defines a public–private partnership as a long-term contract between a private entity and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance.)**
( ) Yes
( ) No
( ) Unsure

NOTE: Asterisk indicates a required question.

(Additional Information about PPPs - Unsure Response Only)

5) If you are unsure, please provide additional partnership/project details.*

_____

_____

_____

_____

Experience with PPPs

6) What was the subject/purpose of the public–private partnership? (Check all that apply.)*
[ ] Management of airport
[ ] Management and/or operation of one or more specific airport-owned facilities (e.g., terminal buildings, FBO services/hangars, hotels, industrial facilities, restaurants, commercial/office buildings, etc.)
[ ] Service contracts (i.e., concessions, maintenance, fuel, custodial, ARFF, security, etc.)
[ ] Parking services
[ ] Construction of facilities (e.g., terminal buildings, FBO buildings, hangars, hotels, industrial facilities, restaurants, commercial/office buildings, etc.)
[ ] Operation of the FBO
[ ] Other, please specify: _____

7) What was important in terms of driving your decision for pursuing a public–private partnership or arrangement at your airport? (Check all that apply.)*
[ ] Access to private capital for development
[ ] Extract up-front or ongoing payment for the airport asset (i.e., asset monetization)
[ ] Stimulate airport activity, including air service (e.g., charter and/or scheduled, if applicable)
[ ] Introduce more innovation and creativity
[ ] Secure long-term efficiencies in operation and maintenance and enhance customer service
[ ] Shift the risk of debt, capital development, and/or operations to private sector
[ ] Accelerate project delivery and reduce construction costs
[ ] Increase airport revenue/funding
[ ] Reduce reliance on general tax levies/traditional sources of funding
[ ] Depoliticize airport decision-making
[ ] Increasing airport staff capabilities/manpower
[ ] Other, please specify: _____

8) Please provide any additional comments regarding the PPP experience you have that has not already been asked/discussed in this survey.

_____

_____

_____

_____

Contact Form

9) Please provide your contact information below so we may get in touch with you.

First Name: _____

Last Name: _____

Title: _____

Organization or Company Name: _____

Zip Code: _____

Email Address: _____

Phone Number: _____

APPENDIX B

Survey Questionnaire

General Information

1) What best describes your role?*
( ) Airport manager
( ) Local government official that oversees the GA airport
( ) State airport official
( ) Federal aviation official
( ) Fixed-base operator
( ) Other, please specify: _____

2) Please provide the three letter identifier for your airport (or airport of interest):*
_____

3) What FAA airport category describes your airport?*
( ) National
( ) Regional
( ) Local
( ) Basic
( ) other, please specify: _____

4) **Contact**
First Name: _____
Last Name: _____
Title: _____
Organization or Company Name: _____
Zip: _____
Email Address: _____
Phone Number: _____

NOTE: Asterisk indicates a required question.

PPP Page One

The following questions pertain to the specific project completed or currently ongoing under a public–private partnership agreement. If you prefer an opportunity to discuss this survey or your airport's experience with public–private partnerships, a phone interview can be scheduled at the completion of this survey. Note: The World Bank defines a public–private partnership as a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance. In practice, airport PPPs can vary. In recent years, many large commercial service airports (e.g., Boston Logan International, JFK International, Orlando Sanford International) have entered into at least some form of a PPP agreement with a private party. For a brief overview of these agreements, please visit this ICAO Case Study white paper.

5) It was previously determined that the subject airport entered into a public– private partnership agreement with a private or public entity within the past 5 years. Who are/were the parties to the agreement?*

_____
_____
_____
_____

6) Were there any other key stakeholders (that were not a party to the agreement)?*

_____
_____
_____
_____

7) What was the purpose of the public–private partnership? (Check all that apply.)*

[ ] Management of airport
[ ] Service contract
[ ] Parking facility
[ ] Construction of facilities
[ ] Management/operation of facilities
[ ] Other, please specify: _____

PPP Page Two

8) How would you best characterize the public–private partnership/project delivery method that you used?*

( ) Service contract
( ) Management contract
( ) Build–operate–transfer
( ) Build–operate–maintain
( ) Build–to–suit
( ) Design–bid–build
( ) Construction manager at-risk
( ) Design–build
( ) Other, please specify: _____

9) What type of contracting process was used in your public–private partnership?*
( ) One-step (competitors submit all information at one time and a bid is selected)
( ) Two-step (a short-list of bidders is selected based on qualifications; those short-listed then submit a bid for the project)
( ) Multiphase (project is broken into different phases and awarded separately based on qualifications)
( ) Other, please specify: _____
( ) Unsure

10) What type of procurement method was used?*
( ) Low-bid
( ) Qualifications-based
( ) Best-value
( ) Other, please specify: _____

PPP Page Three

11) Please describe the role the public and private entities played in this contract, including in the design and construction process (if applicable), with respect to reviews and approvals, inspections, acceptance criteria? Who had/has the primary responsibility for these areas? (e.g., airport, local officials, state officials, FAA, private entities, etc.) Were the FAA and state agency involved in the review and concurrence of any agreements? *

_____
_____
_____
_____

12) Were FAA grant assurances included and/or incorporated into the agreement(s)?
( ) Yes
( ) No
( ) Unsure

13) With respect to this project, what is the ongoing management arrangement? *

_____
_____
_____
_____

PPP Page Four

14) Who is/will manage the project after completion?*

_____
_____
_____
_____

15) What are the reasons for pursuing such an agreement? (Check all that apply.)*
[ ] Access to private capital for development
[ ] Extract upfront or ongoing payment for the airport asset
[ ] Stimulate airport activity, including air service and airline competition
[ ] Introduce more innovation and creativity
[ ] Secure long-term efficiencies in operation and maintenance
[ ] Enhance airport customer service
[ ] Shift risk of debt, capital development, and/or operations to private sector
[ ] Accelerate project delivery and reduce construction costs
[ ] Increase airport revenue and funding
[ ] Reduce reliance on general tax levies and other traditional sources of airport funding
[ ] Improve operational efficiencies
[ ] Make better use of limited airport resources (including personnel)
[ ] Other, please specify: _____

16) What process did you use to best determine market, logistical and operational feasibility of your project? (i.e., how was the project developed and how was support generated; business plan, planning study, land use plan, target industry analysis)?*
_____
_____
_____
_____

PPP Page Five
17) What methods did you use to attract potential private investors? (e.g., RFP, RFQ, advertisements)*
_____
_____
_____
_____

18) What incentives did you use to attract potential investors? (e.g., abatements, other development incentives)*
_____
_____
_____
_____

PPP Page Six
19) [PERTAINING TO PPP LEASE AGREEMENTS ONLY]: Did your PPP-related airport's lease address costs if the project is abandoned (risk management)? This includes any clean-up and remediation costs if some construction and/or installation work was done. If yes, how is it handled? (Please enter N/A if not applicable to your airport's project.)*
_____
_____
_____
_____

20) [PERTAINING TO PPP LEASE AGREEMENTS ONLY]: What was/is your airport's process for approval of proposed lease terms by their respective governing bodies: do you start with a letter of intent, memorandum of understanding or similar document? Is it fully or partly binding or not? (Please enter N/A if not applicable to your airport's project.)*

_____
_____
_____
_____

PPP Page Seven

21) How did/does your airport structure partnerships/contracts so that it is advantageous for both the developer and the airport (i.e., a developer "wins" and airport does not "give away the farm)?" *

_____
_____
_____
_____

22) What key elements should be in a good lease (or are in your lease agreements) and how does your airport help your state, city, and/or county attorney(s) understand airport-specific factors? *

_____
_____
_____
_____

23) Which of the following do you consider to be a benefit of having partnered with a private-sector partner? (Check all that apply.)*

[ ] Innovative infrastructure solutions
[ ] Shorter construction schedule
[ ] Risks better understood from the beginning of the project
[ ] Transfer of project-related risk
[ ] Increased quality
[ ] Increased flexibility of financing options
[ ] Increased efficiencies
[ ] Cost savings
[ ] Other, please specify: _____
[ ] No benefit

24) Which of the following do you consider to be limitations in partnering with a private-sector partner? (Check all that apply.)*
[ ] Increased financing costs
[ ] Greater possibility of unforeseen challenges
[ ] Limited governmental flexibility
[ ] New risks from complex procurement process
[ ] Loss of facility control
[ ] Perception of private sector "take-over" by the public
[ ] Not enough competitive, high-quality bids
[ ] Schedule overruns
[ ] Other, please specify: _____

PPP Page Eight
25) What financing risks have you encountered with a private-sector partner? (Check all that apply.)*
[ ] Funding fails to close in time
[ ] Funding fails to close at all
[ ] Changes in financing costs
[ ] Changes in inflation rate
[ ] None
[ ] Other, please specify: _____
[ ] Not applicable/did not transfer financing risk to private sector

26) What design and construction risks have you encountered with a private-sector partner? (Check all that apply.)*
[ ] Coordination/communication between design and construction processes
[ ] Discovery of archaeological, paleontological, or other cultural resources
[ ] Discovery of hazardous materials
[ ] Unknown utility or other right-of-way infrastructure issues
[ ] Permitting delays
[ ] None
[ ] Other, please specify: _____
[ ] Not applicable/did not transfer design and construction risks to private sector partner

27) What operation and maintenance risks have you encountered with a private-sector partner? (Check all that apply.)*
[ ] Facility required more maintenance than planned
[ ] Facility costlier to operate than planned
[ ] Different standards or equipment requirements imposed than originally agreed to
[ ] None
[ ] Other, please specify: _____
[ ] Not applicable/did not transfer operation and/or maintenance risks to private sector partner

28) What revenue risks have you encountered with a private-sector partner? (Check all that apply.)*
[ ] Passenger volume lower than predicted
[ ] Use of hangar facility lower than predicted
[ ] Fueling activity lower than predicted
[ ] None
[ ] Other, please specify: _____
[ ] Not applicable/did not transfer revenue risks to private sector

PPP Page Nine

29) How important are/were the following in contributing to the success of your public–private partnership? [Please rate in terms of importance.]*

	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important at all
State design and building requirements	( )	( )	( )	( )	( )
Federal design and building requirements	( )	( )	( )	( )	( )
Airport rules, regulations, and minimum standards	( )	( )	( )	( )	( )
FAA grant assurances	( )	( )	( )	( )	( )
Subordination and/or estoppel agreements	( )	( )	( )	( )	( )

(continued on next page)

	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important at all
Remuneration and remediation cost agreements for abandoned projects and/or project	( )	( )	( )	( )	( )
Clean-up needs	( )	( )	( )	( )	( )
Coordination with other tenants and users whose activities were affected during the project	( )	( )	( )	( )	( )
Local design and building requirements	( )	( )	( )	( )	( )

30) What were the three most important factors or elements of this project that contributed to its success? *
1.: _____
2.: _____
3.: _____

31) What were the three biggest factors or elements of this project that impeded or threatened its success? *
1.: _____
2.: _____
3.: _____

PPP Page Ten

32) Did the terrain, the weather, or any water or mineral rights issues affect the project in any way? If yes, how so? (Please enter N/A if not applicable to your airport's project)*

_____
_____
_____
_____

33) Please provide any additional comments, lessons learned, or advice you may have regarding the experience you've had entering into contracts with a private-sector partner that have not already been asked/discussed in this survey.

_____
_____
_____
_____

Thank You!

Thank you for taking our survey. Your response is very important to us. If you have any questions, please contact our principal investigator, Jeff Borowiec, at jborowiec@tamu.edu, 979-845-5200. Thank you.

APPENDIX C

Survey Respondents and Interviewees

As discussed in this report, this survey was developed with the online survey tool Survey Gizmo and was distributed via e-mail to key GA airport officials. The screening survey was sent to 664 airport managers and aviation professionals with the intent of reaching out to a broad and diverse general aviation community to seek input on airports that have been involved in projects with private partners.

The research team received input from several state directors, FAA ADO managers, and individual airport managers and professionals. Some sent names of airports for follow-up while others completed the screening survey that was included in the initial contact e-mail. In total, 39 airports participated in the screening survey, with 26 completing it. The research team also reached out to and conducted interviews on the topic with industry experts in privatization, airport law, and airport management/development.

Twelve airports agreed to participate in the primary, more detailed survey (of 19 surveys sent out). As with the screening survey, this survey was provided to them online with an option to receive one in the mail if they preferred. Eight airports completed the survey in its entirety, and four airports completed the survey partially. The airports that were case examples were selected from the group of respondents, with the intention of including representation from the various asset categories of airports.

The Texas Transportation Institute received completed survey results from airport officials (or key stakeholders) from the following airports and would like to thank the officials from these airports for their response:

- Meadow Lake Airport (Colorado Springs, Colorado),
- McKinney National Airport (McKinney, Texas),
- Moffett Federal Airfield (Santa Clara County, California),
- Fort Worth Meacham International Airport (Fort Worth, Texas),
- Morristown Municipal Airport (Morristown, New Jersey),
- Northeast Ohio Regional Airport (Jefferson, Ohio),
- Crater Lake–Klamath Regional Airport (Klamath Falls, Oregon), and
- Cecil Airport (Jacksonville, Florida).

Abbreviations and acronyms used without definitions in TRB publications:

A4A	Airlines for America
AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI–NA	Airports Council International–North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FAST	Fixing America's Surface Transportation Act (2015)
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
MAP-21	Moving Ahead for Progress in the 21st Century Act (2012)
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TDC	Transit Development Corporation
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S. DOT	United States Department of Transportation

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